THE JOURNAL OF THE AMERICAN OSTEOPATHIC ASSOCIATION

Vol. 39, No. 2 | 540 N. Michigan Ave., Chicago, Ill. | October, 1939

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This is the goal which Dr. Frank MacCracken, Chairman of the Committee on Special Membership Effort, has set for this year. His slogan is: "It Can Be Done by Those Who Think It Can Be Done." You can help him get it done.

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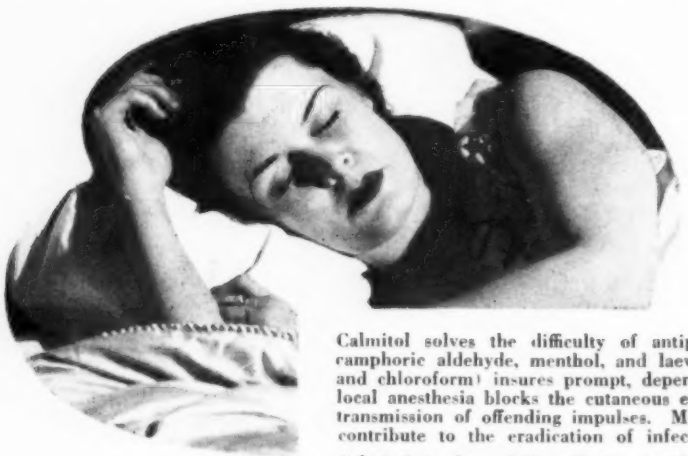

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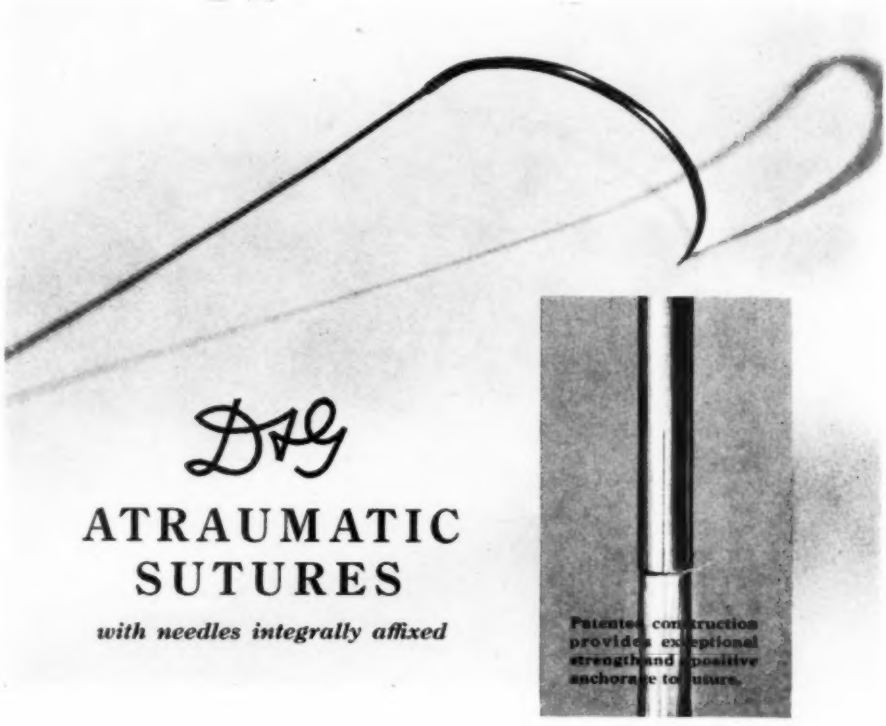

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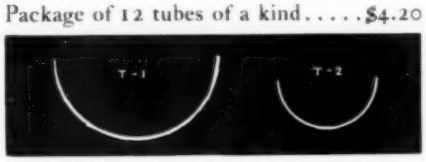

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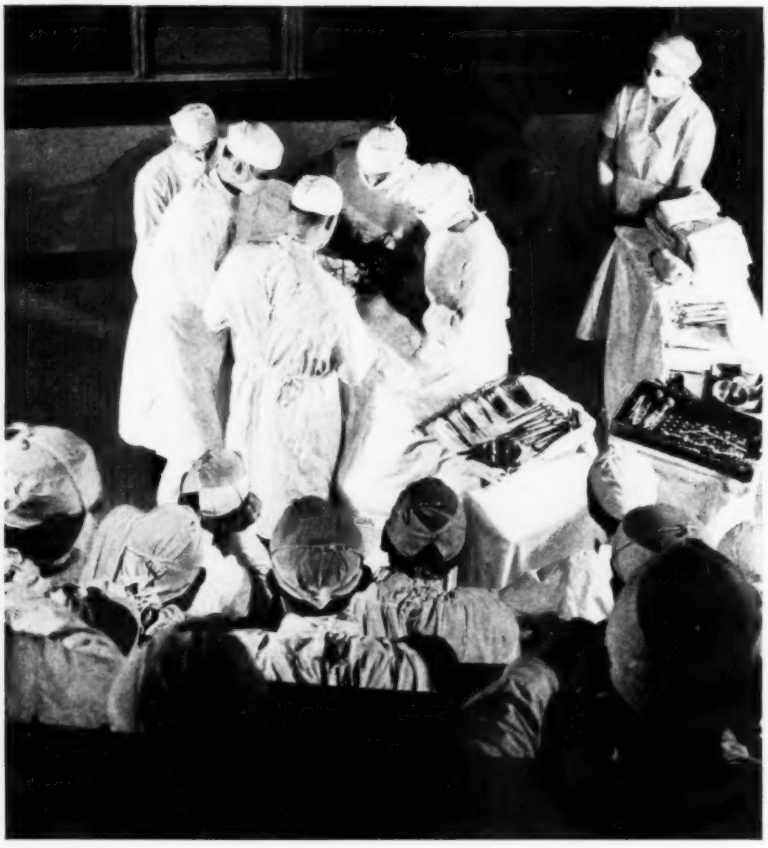

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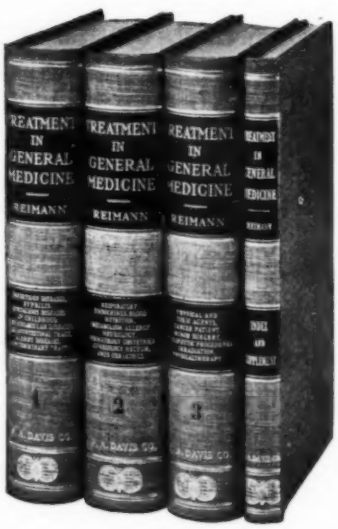

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"Proceedings of the Society for Experimental Biology and Medicine", 40:157, 1939.

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The gelatine used in this study was plain Knox Gelatine (U.S.P.) which assays 85% protein and which should not be confused either with inferior grades of gelatine or with sugar-laden dessert powders, for these latter products will not achieve the desired effects. When you desire pure U.S.P. Gelatine, be sure to specify KNOX. Your hospital can get it on order.

EXTRA ENERGY FORMULA

Empty one envelope of Knox Gelatine in a glass three-quarters filled with cold water or fruit juice (or half water and half fruit juice). Let the liquid absorb the gelatine. Then stir briskly and drink immediately before it thickens. Take four times a day for two weeks, then reduce to two envelopes a day. (May be taken before or after meals).

WRITE
Dept. 491

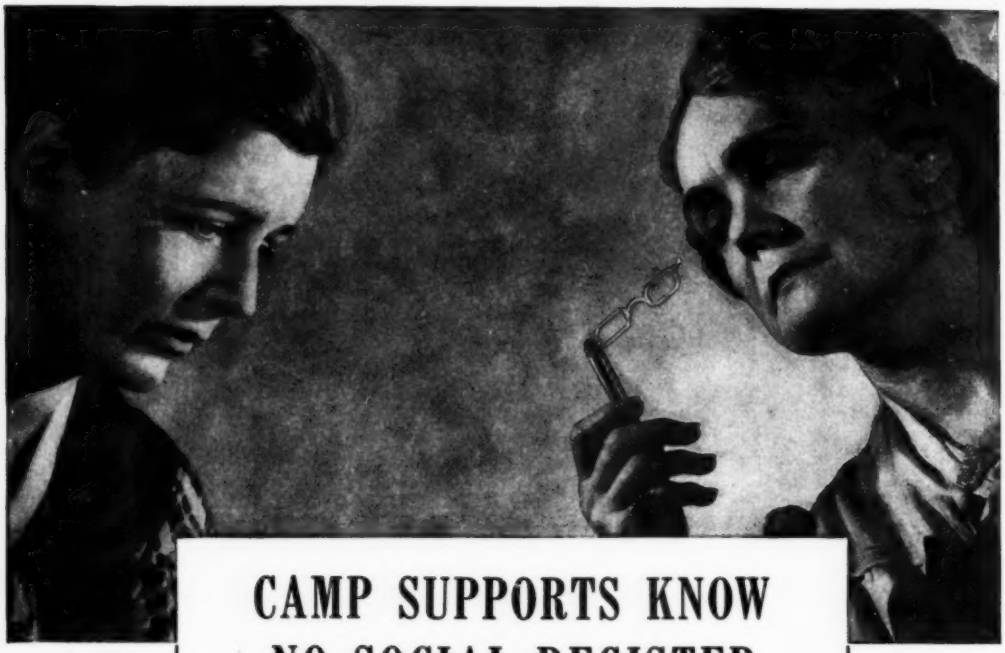
KNOX GELATINE LABORATORIES
JOHNSTOWN NEW YORK

Please send literature on the use of Knox Gelatine to increase energy.

Name_____

Street_____

City_____ State_____



CAMP SUPPORTS KNOW NO SOCIAL REGISTER

The Camp Transparent Woman, famous educational exhibit now on display at the N.Y. Museum of Science and Industry at Rockefeller Center.

ONE of the most significant observations made during public showings of the Camp Transparent Woman is the fact that "Judy O'Grady an' the Colonel's Lady" display the same intense interest in this remarkable exhibit—not to mention the same ignorance about the structure of their own bodies.

To date over two million persons have seen the Camp Transparent Woman. The medical profession realizes, of course, that just as this interest in the Camp Transparent Woman knows no social register—the *need* for correct scientific support is equally unmindful of social rank. The variety of Camp models embraces the same broad scope; for S. H. Camp & Company sponsor a special garment for every figure requirement.

It is important, therefore, to remind doctors that the sensible, low prices of Camp Supports bring them within reach of *all* who need them. Constant research and close collaboration with medical authorities help to make Camp Supports the very finest and most effective supports obtainable *at any price*. Fitters trained by the Camp organization are available in good stores throughout the country to assure doctors that their prescriptions will receive expert attention.

Camp Supports are never sold by door-to-door canvassers. It is not surprising therefore that many doctors, in prescribing scientific garments, make sure to *specify* Camp Supports.

CAMP Supports

S. H. CAMP & COMPANY, JACKSON, MICHIGAN

Offices in: New York, Chicago, Windsor, Ont., London, England • World's largest manufacturers of surgical supports

Dollar for Dollar

—the Biggest Value in Bloodpressure Service

THE STANDBY MODEL

A truly major piece of equipment—in step with the present day advanced importance of bloodpressure; this revolutionary new Lifetime Baumanometer is destined to make history anew. Designed primarily for office work, it stands on the floor and is highly practical for hospital bedside use and ideal for the operating room.

The EXACTILT scale of the STANDBY, utilized here for the first time in any mercury-gravity bloodpressure instrument is permanently fixed at the exact angle for maximum reading efficiency from either the sitting or standing position —no adjustments necessary. The angle of the EXACTILT scale is compensated for by individual calibration.

The STANDBY Model is beautifully designed in die-cast Dow metal (Magnesium), the lightest metal used industrially—one-third lighter than aluminum. It weighs only 6½ pounds and is 38½ inches high. The compartment that holds the inflation system is an integral part of the instrument. The rubber parts, bulb, bag and tubing are all made of genuine Latex. The recessed glass Cartridge Tube is guaranteed against breakage for the doctor's lifetime.

Your surgical instrument dealer will gladly show you this new instrument.

Lifetime Baumanometer
STANDARD FOR BLOODPRESSURE

W. A. BAUM CO. INC. NEW YORK
SINCE 1916 ORIGINATORS AND MAKERS OF BLOODPRESSURE APPARATUS EXCLUSIVELY

METHODS FOR QUANTITATIVE ESTIMATION OF THE VITAMINS

1. The Determination of Vitamin D Activity

● About fifteen years ago it was clearly established that there could be present in certain foods or biological materials some substance which possessed antirachitic potency. Subsequently this "antirachitic factor" became known as vitamin D. Today, we know that at least ten sterol derivatives may exert antirachitic effects closely comparable to those of the originally discovered vitamin D (1).

Recognition of the existence of the antirachitic vitamin naturally stimulated investigation of methods whereby this dietary essential could be quantitatively estimated. Steady advances in knowledge of the causes and effects of rickets brought gradual improvements in these methods. Consequently, there are now available several techniques for the quantitative determination of vitamin D in foods or other biological materials.

The first and probably most widely employed method for estimation of vitamin D is by means of the so-called "line test" (2). In this technique as now employed (3), young rats are confined for 18 to 25 days to a diet conducive to development of rickets. These periods of time, with proper handling and confinement of the animals, are sufficient to induce a definitely rachitic condition. The rachitic rats are then properly grouped with respect to negative control groups to receive no supplements to the rachitic ration; positive control or reference groups to receive graded doses of some standard reference material; and "assay groups" to be given graded doses of the material under test. For the next 8 days the animals are fed daily doses of the proper supplement, either assay or reference material. No supplements are fed on the ninth and tenth days.

On the eleventh day the animals are sacrificed and either the proximal end of the tibia or the distal end of the radius or ulna dissected out, sectioned, cleaned and finally immersed in silver nitrate solution. By double decomposition reaction, silver salts deposit where calcium is present in the metaphysis of the bone. When exposed to light these silver salts are reduced and form a dark line indicating the extent of calcium deposition. The experienced technician can estimate the degree of healing from rickets by the continuity and area of the line. By comparison of the results obtained on the various groups of animals, a quantitative expression of the antirachitic activity of the material under assay may be obtained.

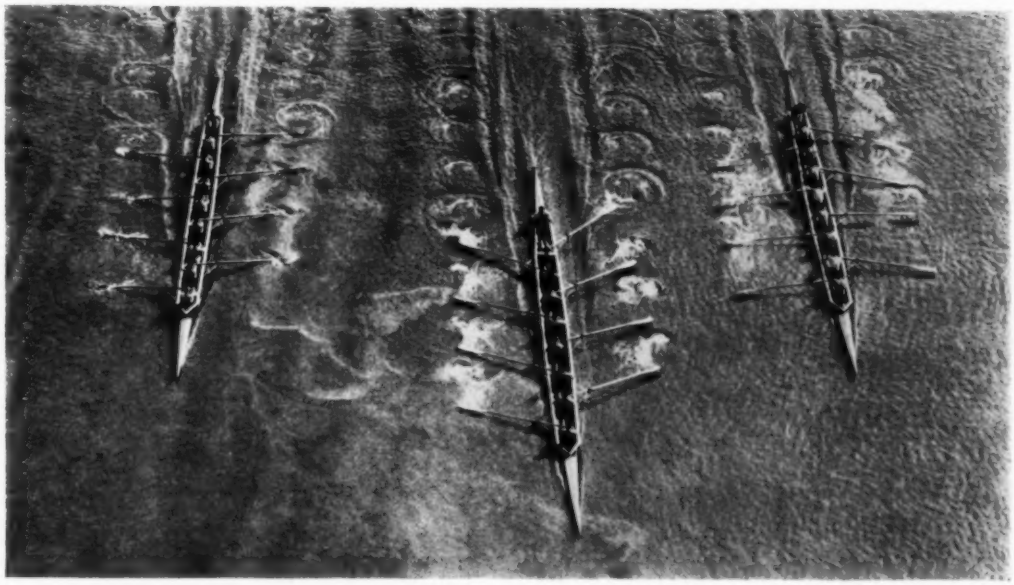
A second method for evaluating vitamin D activity is that involving determination of "bone ash" (4). In this technique, final estimation of the degree of bone calcification—and thus the antirachitic potency of the substance under assay—is made by chemical analysis of specific bones of the experimental animals. A third assay method (5) is that involving roentgenological examination of certain bones. Comparisons of the bone densities of the various experimental animals serve as a basis for estimating the degree of healing from—or prevention of—rickets and hence permit determination of the vitamin D activity of the material under test.

Common foods as they naturally occur can hardly be considered as food sources of vitamin D. However, as exceptions, certain foods of marine origin (6) might be mentioned which consistently contribute small but definite amounts of the antirachitic factor to the diet. In addition, development of various means of fortifying foods with vitamin D—particularly those foods of importance in infant and child feeding—has made available other food sources of the vitamin (7). Among the many varieties of commercially canned foods will be found products of both types, which, when properly used or supplemented, should prove of value in obtaining an adequate intake of vitamin D, particularly by infants and children.

AMERICAN CAN COMPANY
230 Park Avenue, New York, N. Y.

(1) 1938. J. Am. Med. Assoc. 110, 2150.
(2) 1922. J. Biol. Chem. 51, 41.
(3) 1936. The Pharmacopeia of the United States of America, Eleventh Decennial Revision, 482.
(4) 1923. J. Biol. Chem. 58, 71. 1924. Ibid. 61, 405.
(5) 1928. Biochem. J. 22, 135.
(6) 1938. J. Am. Med. Assoc. 111, 528.
(7) 1937. J. Am. Med. Assoc. 108, 206.

We want to make this series valuable to you, so we ask your help. Will you tell us on a post card addressed to the American Can Company, New York, N. Y., what phases of canned foods knowledge are of greatest interest to you? Your suggestions will determine the subject matter of future articles. This is the fifty-second in a series, which summarize, for your convenience, the conclusions about canned foods reached by authorities in nutritional research.



Rhythm

Reestablishment of natural peristaltic rhythm in cases of habitual constipation may be accomplished with Saráka*. It provides a bland, easily-gliding *bulk*, lacking in the average daily diet. Saráka also gives rhythmic *motility* to the flabby intestinal musculature.

Saráka's bulk forms an integral part of the intestinal contents, softening and smoothing the fecal mass. It causes no griping, digestive disturbances, or annoying leakage.

SARÁKA

is not habit-forming. To pure bassorit granules (derived from an East Indian tree sap) a specially-prepared frangula is added. These give smooth, lubricated

BULK PLUS MOTILITY

Try Saráka clinically in order to convince yourself of its safety and efficacy. Simply fill in and mail the coupon below for your free trial supply.

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BLOOMFIELD, NEW JERSEY

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Please forward my FREE trial supply of SARÁKA.
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J.O.A.-10

Help Them Plan a Wise Diet
with
HORLICK'S
the Original Malted Milk

YOU can help with a wise diet plan by suggesting Horlick's Malted Milk. It provides important minerals in a readily available form, plus a good supply of muscle building protein. You will find Horlick's useful in diets for the expectant or nursing mother, and for malnourished infants, children, and adults. Patients relish its delicious flavor. For a free trial supply, write, on your professional letterhead, to Horlick's, Dept. JAOA-10, Racine, Wis.

HORLICK'S
the Original Malted Milk

NOW AT NEW LOW PRICES

ANIMAL FAT
Versus
PETROLEUM

It is generally recognized as a scientific fact that an animal fat base is a better vehicle for topical medication than hydrocarbons. It permits of greater absorption of the contained active ingredients. This value, plus the fact that it is scarcely noticeable when vigorously rubbed on the skin, makes it ideal.

Penetro has this advantage because of its mutton suet base which is stainless and readily melts at body temperature.

It is also heavily medicated with Methyl Salicylate, Turpentine, Menthol, Camphor and Thymol, and may be justly regarded as an ideal counter-irritant. Penetro's value in this respect is definitely established, and it is used effectively in colds, tracheitis, acute bronchitis and muscular aches and pains.

"Use counter-irritation in all conditions in which it is justified."

PHILO BURT SPINAL APPLIANCE

Corrective Support.
Light in Weight,
Comfortable to Wear.
Desirable flexibility.
Easily and quickly adjusted,
Strongly made and durable,

Successfully used in over sixty-three thousand cases.

This appliance provides proper anatomical support to give patients the utmost good from your treatments. It supplements your work and retains results as you achieve them. Many Osteopathic Practitioners use the Philo Burt Appliance in varied conditions of spinal ailments.

Always made to Measure — Sent on **30 DAYS TRIAL**

We will make to order a special Appliance; allow its use for a 30-Day Trial and refund the price, if not satisfactory.

Let us send you illustrated description of the Appliance, with letters from Osteopathic Physicians in evidence of its corrective efficiency. WRITE TODAY.

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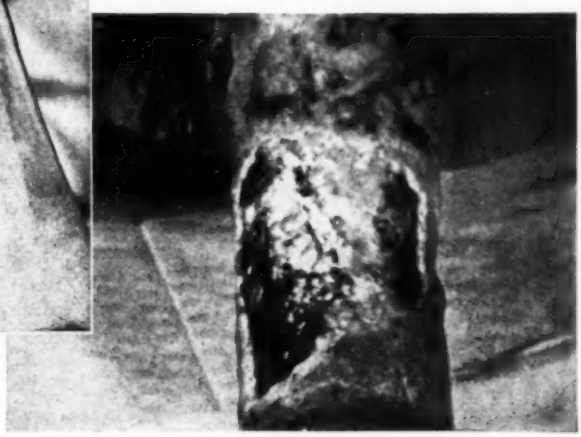
PROLARMON

In the Treatment of Infected and Non-Infected Slow-Healing Wounds

Chronic metastatic osteomyelitis of right tibia.

Extensive ulcer of leg from third degree burn.



Prolarmon Liquid

Prolarmon Liquid is a sterile, aqueous solution containing the water-soluble and filtrable substances of comminuted blowfly maggots (Lucilia sericata), 5%; boric acid, 4%; sodium chloride, 0.75%; chlorbutanol, 0.5%; calcium gluconate, 0.5%; oxyquinoline sulfate, 0.4%.

Prolarmon Jell

Prolarmon Jell, a greaseless, sterile preparation, provides the active ingredients of Prolarmon Liquid, incorporated in an aqueous jell base composed of vegetable gums, cornstarch, glycerin, sodium chloride, potassium cetyl palmitate, citric acid, and water.

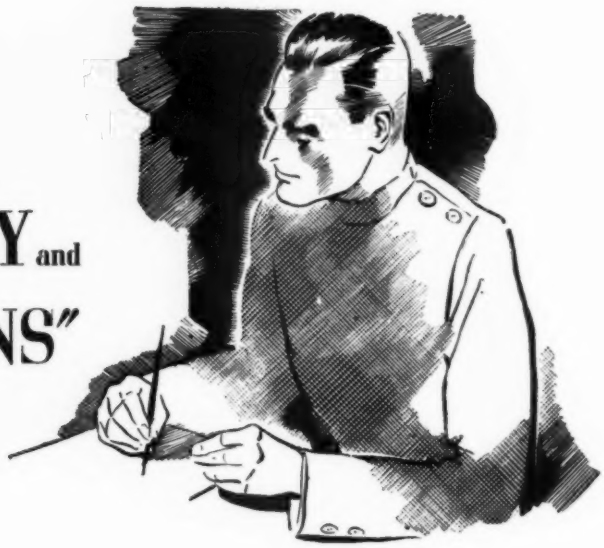
Prolarmon Liquid is available in 4 oz. and 8 oz. bottles; also in hospital sizes, ½ gal. and 1 gal. Prolarmon Jell may be had in 1 oz. tubes, and in 4 oz. and 8 oz. jars; it is also available in hospital sizes, 4¼ and 8½ lb. jars.

Physicians are invited to send for clinical test samples, literature, and bibliography of published reports.

MAGGOT PRODUCTS COMPANY

222 NORTH BANK DRIVE • CHICAGO, ILLINOIS

"...SUMMARY and CONCLUSIONS"



1 The therapy of male sex hormone deficiency has made notable progress in the half decade since discovery of the process for synthesizing testosterone, accepted as the true male sex hormone.

2 Perandren, "*Ciba*" (testosterone propionate), after extensive and intensive experimental and clinical investigations, is widely known, due to its monographic bibliography, for its clinical effectiveness in treating this deficiency.

3 Perandren* is therefore indicated in cryptorchidism, hypogonadism, sexual impotence, prostatism, gynecomastia, atrophic rhinitis and the male climacteric as well as in other clinical entities and syndromes attributable to such an actual or relative deficiency, and in eunuchoidism and eunuchism.

4 The many published articles attesting Perandren's successful use in selected female patients suggest that herein it may occupy a place of importance.

5 Recent price reductions of 14½% to 22% increase the clinical value of Perandren by making it valuable to a wider group of patients.

PERANDREN, the esterized, synthetic and chemically pure male sex hormone in sterile oil solution, for intramuscular injection, is supplied in concentrations of:

5 mg. per cc., boxes of 3, 6, and 50 one-cc. ampules
10 mg. per cc., boxes of 3, 6, and 50 one-cc. ampules
25 mg. per cc., boxes of 3, 6, and 50 one-cc. ampules

Also available in ointment for inunction; issued in tubes of 50 grams containing a total of 100 mg. testosterone propionate.

DETAILED INFORMATION REGARDING DOSAGE, INDICATIONS AND LATE BIBLIOGRAPHY ON REQUEST

*Trade Mark Reg. U.S. Pat. Off. Word "Perandren" identifies the product as Testosterone Propionate of Ciba's manufacture.

Heart Display — Heart Exhibit and Endocrine Display
SPONSORED BY "CIBA"

CIBA PHARMACEUTICAL PRODUCTS, Inc. SUMMIT, NEW JERSEY

HE FITTED 100,000 PAIRS OF FEET

—to make your shoe prescriptions more effective

Model R for men and Rx Prescription last for women. Have been prescribed by doctors for weak and strained feet, metatarsalgia and other foot lesions, with good results.

● When you specify "Walk-Over," your patient receives the benefit of 60 years' *practical* shoe experience. (One Walk-Over shoe designer has personally fitted over 100,000 pairs!)

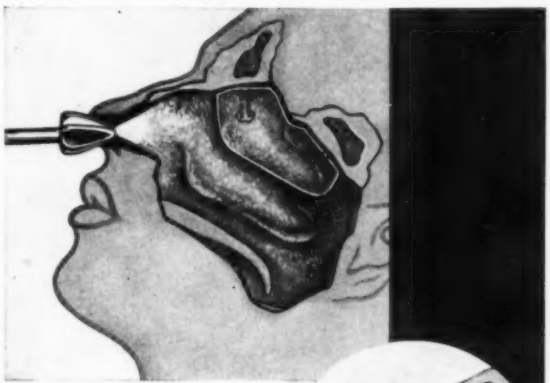
Walk-Over was *first* to pioneer shoes with 3-point suspension. This sound principle, a part of the semi-flexible "controlled exercise" Spring Arch, is a feature of all Walk-Over Prescription Shoes.

There are 24 basic Walk-Over lasts for all common foot lesions and all types of feet. Your nearest Walk-Over retailer is trained to fill your prescription for any of them accurately.

For complete descriptions of all Walk-Over basic lasts—write to Geo. E. Keith Company, Brockton, Mass. Ask for free booklet, "Walk-Over Prescription Shoes."

WALK-OVER
PRESCRIPTION SHOES

PROLONGED NASAL RELIEF



Atomizer

Dropper

● When you wish to prolong the beneficial effects of your nasal treatment, we suggest you instruct your patient to *spray* his nose with the solution you prescribe for home use.

If he should use a medicine dropper, the solution might go where it will do some good—and again it might not! But spraying reaches all of the walls of the nasal cavity. Above illustrations show the contrast indicated by X-rays, of the spread of solution applied by the two methods when the head is held in the usual positions.

For general use, prescribe DeVilbiss No. 15 (medium spray); to apply vasoconstrictors, prescribe No. 14 (fine spray).

DEVILBISS

The DeVilbiss Company, Toledo, Ohio, headquarters for atomizers and vaporizers for professional and home use

Comparative Times of Disappearance of Acetylsalicylate from the Stomach After Administration of Alka-Seltzer or Aspirin

CROSS SECTION TABULATION
OF EXPERIMENTAL RESULTS

SUBJECTS	TIME OF DISAPPEARANCE OF ACETYLSALICYLATE	
	AFTER ALKA-SELTZER	AFTER ASPIRIN
	MINUTES	MINUTES
E. P.	60	75
F. S.	45	90
J. M.	45	90
A. G.	30	150+
J. F.	30	135
T. C.	75	90
AVERAGES	47	105+

Ratio of time of Disappearance of Acetylsalicylate:

$$\frac{\text{ASPIRIN}}{\text{ALKA-SELTZER}} = \frac{2.7}{1}$$

In order to determine the value of Alka-Seltzer as an effective agent in the relief of minor ailments, a sequence of laboratory and clinical studies has been conducted.

One phase of this investigation is summarized in the accompanying table.

A more detailed account of these informative experiments will shortly be published in the form of an illustrated booklet which will be distributed with our compliments to interested physicians.

CONCLUSIONS

The average time for complete gastric evacuation of acetylsalicylic acid after Alka-Seltzer was 47 minutes and after aspirin more than 105 minutes; i. e., disappearance of acetylsalicylic acid for aspirin took nearly three times as long as it did for Alka-Seltzer.

The significance of these results relates to (a) the speed of systemic absorption and hence more rapid action of the analgesic; and (b) lessening of any possible irritant action of the analgesic on the gastric mucosa.

MILES LABORATORIES, INC.
OFFICES AND LABORATORIES: ELKHART, INDIANA

AS ONE PHYSICIAN TO ANOTHER...

In Treating Constipation, This is What 9 Physicians Out of 10 Would Say . . .

New habits of elimination, new dietary habits are the basis of most successful treatment. However, in aiding in the re-establishment of such habits, a bland pure mineral oil may often be most helpful. And now, in light of recent studies upon the effects of Vitamin B-1 in the gastro-intestinal tract, this important food factor may be an essential in restoring normal tonus to the neuro-muscular mechanism of the intestines.

Both of These Important Aids are Present in Vita Nujol!

VITA NUJOL is a pleasant tasting mineral oil emulsion with pure crystalline Vitamin B-1 added. The concentration of the vitamin is such that the recommended average dose of Vita Nujol contains the average maintenance requirements for an adult (400 International Units).

VITA NUJOL will be found to be helpful not only in the treatment of constipation, but wherever Vitamin B-1 deficiency may be a factor. This includes such conditions as loss of appetite, the toxemias of pregnancy and chronic alcoholism, gastric and duodenal ulcers, and many other common syndromes

• • •

A postal card brings you free samples and descriptive literature. Stanco Incorporated, 1 Park Ave., New York, N.Y.

VITA Nujol

Copr. 1939, Stanco Inc.

REACTIVE HYPEREMIA

of decided benefit in vascular conditions

Burdick RHYTHMIC CONSTRICTOR

In the treatment of peripheral vascular diseases, the reactive hyperemia accompanying use of the Burdick Rhythmic Constrictor is effective in relieving pain, increasing vascularity, elevating the skin temperature and improving the course of the condition.

Conditions that are most benefited include peripheral vascular sclerosis, early thromboangiitis obliterans, acute vascular occlusion, diabetic ulcers, intermittent claudication, chillblains, and frostbite.

The Burdick Rhythmic Constrictor is portable, silent, inexpensive.

THE BURDICK CORPORATION

MILTON WISCONSIN

THE BURDICK CORPORATION, Milton, Wisconsin

I am interested in further information on the Burdick Rhythmic Constrictor.

DR. .....

Address .....

City .....

State .....

A METHOD OF ADMINISTERING SULFAPYRIDINE TO INHIBIT NAUSEA AND VOMITING

The use of Kalak Water as a vehicle for the administration of sulfapyridine appears to inhibit and, in some cases, entirely eliminate nausea and vomiting when the following procedure is adhered to:

1. Give the patient 6 oz. of cooled Kalak to sip slowly.
2. Add the sulfapyridine to ice-cold Kalak. For each 0.5 gm. tablet, use 2 ozs. of Kalak. When the effervescence has ceased the drug is in suspension and ready to use.
3. Give the patient a few ounces of cooled Kalak to aid in the absorption of the drug.

It has been noted that this employment of Kalak tends to inhibit the formation of calculi, a result which occasionally occurs upon protracted sulfapyridine therapy.

Kalak is palatable, carbonated, physiologically balanced in terms of the bicarbonates of calcium, sodium and potassium. It is not a laxative.

KALAK WATER CO. OF NEW YORK
30 Rockefeller Plaza New York, N. Y.

The Value of Ventilation In Acute *INFLAMMATORY NASAL OBSTRUCTION*

In acute coryza the congested, inflamed mucous membrane and subperiosteal swelling is usually so intense that the turbinates often touch the nasal septum and prevent proper ventilation of the nose, accessory sinuses and pharynx. The inflammatory exudate is dammed back, becomes infected and often sets up sinus and middle ear involvements. It is of great importance that the congestion of the mucous membrane be relieved promptly so that ventilation and drainage can be re-established.

In selecting an agent for this purpose, care should be taken as it must have an effective vasoconstrictor action, be soothing and cooling, and at the same time not be actually injurious by increasing local irritation and congestion.

Penetro Nose Drops are an ideal medication for acute coryza, as they are not over-medicated. They are balanced and contain ephedrine, menthol, camphor and eucalyptol, in mineral oil.

Late Summer and Early Fall

Diarrhea in Infancy

Intestinal disturbances of infants are likely to be as frequent and even more severe now than in early summer.

It is therefore timely to suggest again the following rational and efficient procedure as a means to prevent the development of a serious diarrhea.

Mellin's Food 4 level tablespoonfuls
Water (boiled, then cooled) **16 ounces**

Give one to three ounces every hour or two until the stools lessen in number and improve in character.

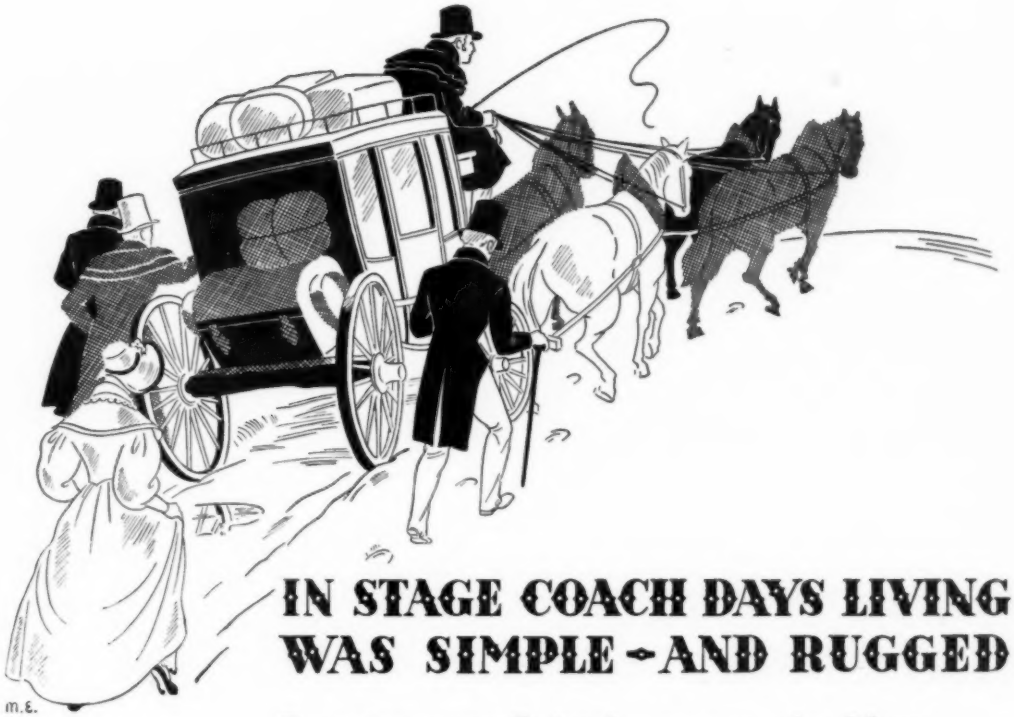
The mixture may then be strengthened by the gradual substitution of boiled skimmed milk for water until the quantity of skimmed milk is equal to the normal quantity of milk used in the baby's formula. Finally the fat of the milk may be gradually replaced by skimming less and less cream from the milk.

Samples sent to physicians upon request.

Directions for using Mellin's Food are left entirely to the physician.

Mellin's Food Company, Boston, Mass.

MELLIN'S FOOD: Produced by an infusion of Wheat Flour, Wheat Bran and Malted Barley admixed with Potassium Bicarbonate —consisting essentially of Maltose, Dextrins, Proteins and Mineral Salts.



IN STAGE COACH DAYS LIVING WAS SIMPLE - AND RUGGED

But pain meant suffering then even as today. Many a dour disposition found its source in hemorrhoids . . . making a stoic of the sufferer . . . who found little joy in living.

For more than a third of a century, Anusol Suppositories have aided the physician to stay the hand of pain. Without narcotic, local anesthetic or analgesic drugs, Anusol Suppositories have made it possible to treat hemorrhoids and other painful, inflammatory conditions of the proctological area medically and afford relief from pain, tenesmus and "fear constipation."

How well Anusol Suppositories have been performing their mission of relief, you can quickly gather by simply asking for a trial supply on your letterhead to observe results at first hand.

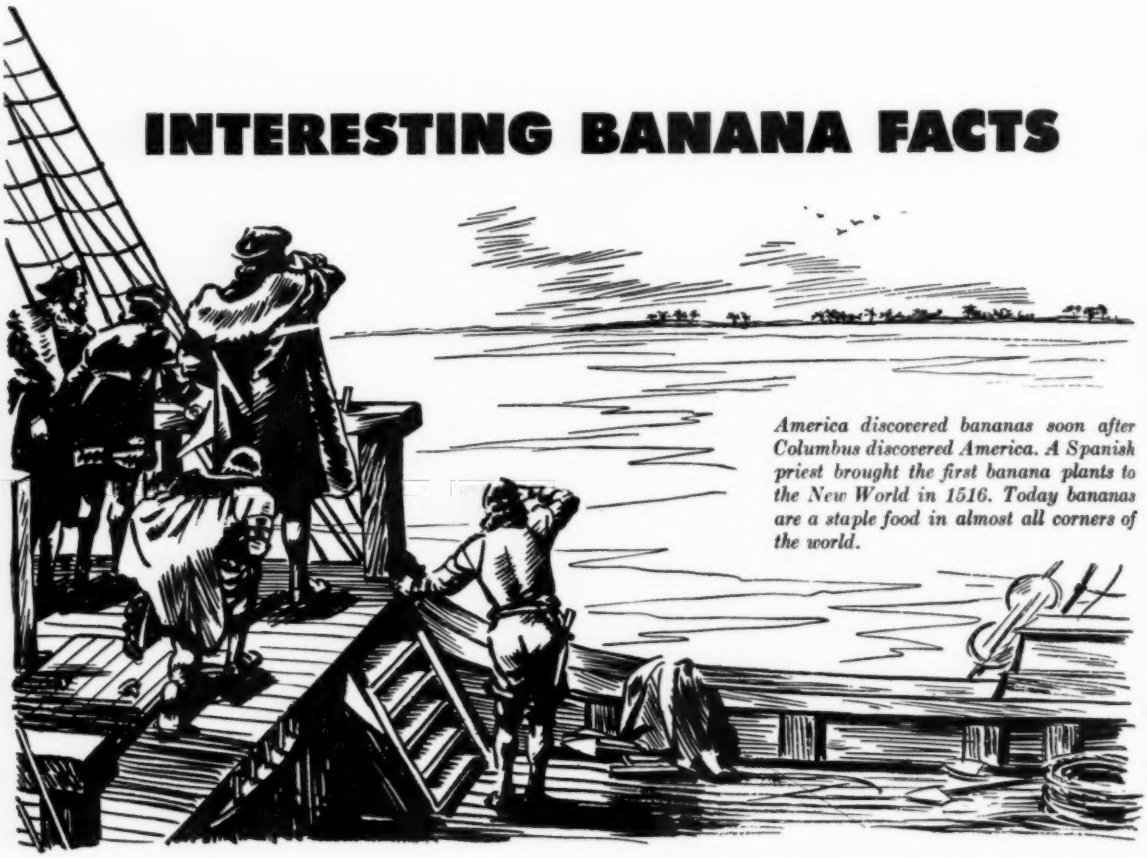
ANUSOL HEMORRHOIDAL SUPPOSITORIES

A SCHERING & GLATZ PRODUCT

SUPPLIED IN BOXES OF 6 AND 12 SUPPOSITORIES

SCHERING & GLATZ, INC., 113 West 18th Street, New York City

INTERESTING BANANA FACTS



America discovered bananas soon after Columbus discovered America. A Spanish priest brought the first banana plants to the New World in 1516. Today bananas are a staple food in almost all corners of the world.

RIPE BANANAS are mildly laxative. Their influence in this respect is probably due in part to their content of vitamins and salts of organic acids, and in part to the cellulose and pectins which they carry. The fiber and pectin content are sufficient to give bulk to the intestinal residues, especially since pectins possess the property of absorbing water and swelling. The soft texture of the fiber is a further advantage for those suffering from spastic constipation.

The key to the varied usefulness of the banana is to be found in its composition. Special points stand out as qualifying it for inclusion in special types of diets. These are summarized in outline form below:

PROPERTIES OF RIPE BANANA PULP	MAKE IT OF VALUE IN
Readily assimilated sugars (along with vitamins, minerals and fiber)	Infant Feeding
Caloric value (along with vitamins and minerals)	Malnutrition
Satiety value and low fat (along with vitamins and minerals)	Reducing Diets
Alkaline residue	Combating Acidosis
Vitamin content	Preventing Deficiency Diseases
Soft texture and blandness (with carbohydrates, vitamins, minerals, pectin and fiber)	Intestinal Disturbances Normalizing Colonic Function Convalescent Diets

PROXIMATE COMPOSITION
RIPE BANANA PULP

MOISTURE		75.6%
DEXTROSE	4.5%	TOTAL SUGARS 19.9%
LEVULOSE	3.5%	
SUCROSE	11.9%	
STARCH		1.2%
CRUDE FIBER		.6%
PROTEIN (N x 6.25)		1.3%
FAT		.6%
ASH *		.8%
		100.0%

*Contains important minerals including calcium, copper, iron and phosphorus

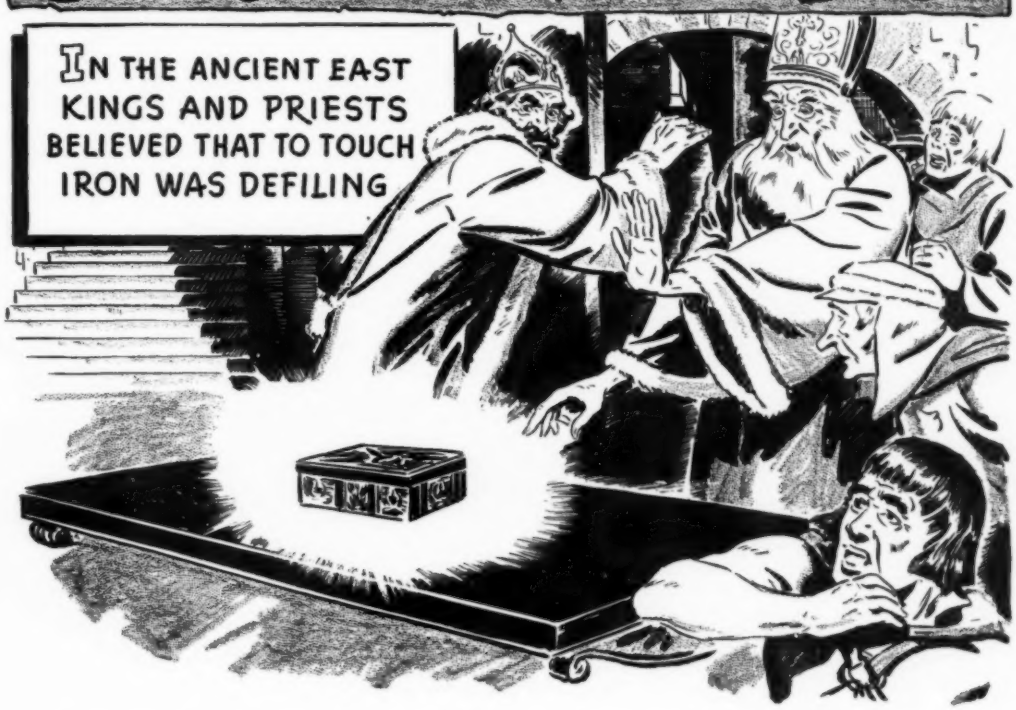
VITAMINS IN BANANAS (Units per Ounce)

International			Sherman
A-71 to 95	B-4 to 5	C-37	G-10

LITERATURE ON REQUEST

UNITED FRUIT COMPANY ~ ~ *P. O. Box 2024, Boston, Mass.*

OLD BELIEFS ABOUT IRON



MODERN *Iron* THERAPY

HEMATINIC PLASTULES

Hematinic Plastules conform to present day requirements for *effective* and *economical* treatment of secondary anemia . . . Small dosage, easy assimilation and rapid response to treatment favor this type of medication over other forms of iron now in common use.

Hematinic Plastules are exceptionally well tolerated, even in anemias of pregnancy and other cases where the gastro-intestinal tract is likely to be easily upset.

SUGGESTED DOSAGE:

One Hematinic Plastule Plain three times daily
Two Hematinic Plastules with Liver Concentrate three times daily

TWO TYPES:

Hematinic Plastules Plain
Hematinic Plastules with Liver Concentrate
In bottles of 50's and 100's

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NOVEMBER COVER

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A description of the symptoms, pathology, and therapeutic measures called for in this disease. The cooperation of the patient is stressed, and the role of osteopathic lesions is touched upon.

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By Joseph L. Love, D.O.

A discussion of the causes from which headache may arise, with an explanation of the part played by the osteopathic lesion.

WATCH YOUR POSTURE WHEN DRIVING.
By T. M. King, D.O.

The title is self-explanatory. Continuous driving in a slouched position is shown to be the cause of many a backache as well as more serious conditions. The importance of teaching children to assume the proper position when riding is emphasized.

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After pointing out the necessity for visits to the physician as a means of safeguarding health, the author states that the question "When should we go to the doctor?" is equally important, his reply being that it is never too early for this.

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An expert in athletic injuries discusses knee, ankle, and shoulder injuries and the role of the osteopathic physician in caring for them.

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A Thanksgiving editorial pointing out that thanks should be given for the change in the sentiment of the world toward war, the necessity for seeking peace and pursuing it.

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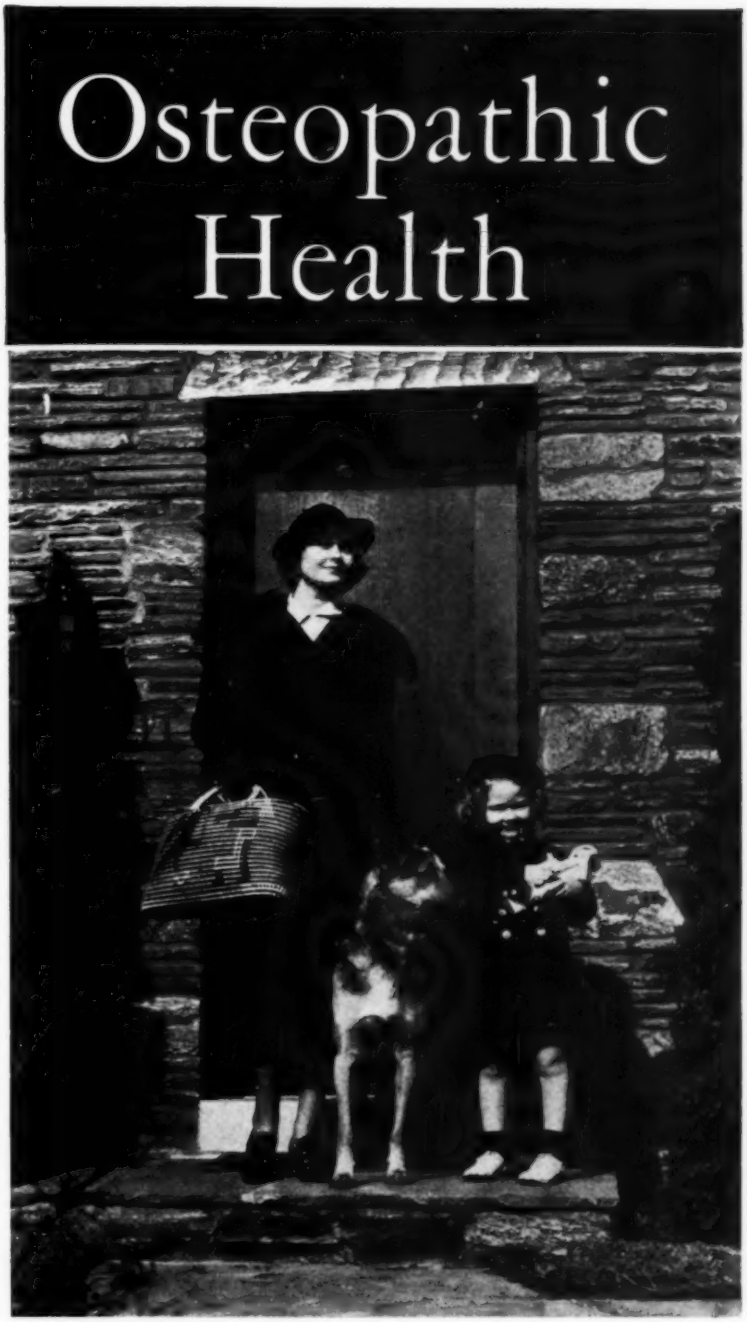

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Posture*

C. GORHAM BECKWITH, D.O.
Hudson, N. Y.

The subject of posture is much discussed but apparently not too well understood. Of many possible definitions, probably the best is that which describes posture as being synonymous with body mechanics. Posture, roughly, like body mechanics, may be good, bad or indifferent. The third adjective was not chosen indiscriminately, as there are a great many people who present a body attitude that might be termed lackadaisical or indifferent. This is true of the average individual. Good posture, sufficient to be noteworthy (and good posture is rare enough to merit observation) is found in not more than 20 to 25 per cent of individuals. Bad posture, sufficiently at variance with the good or indifferent, is present in less than one-fourth of the people. The remaining group, more than half the ambulatory population, is doing its daily work at a rate of efficiency definitely below par but yet without flagrant violation of the principles of good body mechanics. Their attitude is generally that posture is important particularly for someone else.

Good body mechanics prevails when the individual can perform his daily tasks with a minimal waste of expended effort. This does not imply shirking or laziness but rather what amounts to an unusual efficiency. Bad posture is that condition in which there is a frank violation of energy economy. The indifferent or fair posture is the usual, in which there is a variable amount of unnecessary physical exertion. With this approach, posture is synonymous with body mechanics and is definitely related to body equilibrium.

Equilibrium obtains when the line of weight falls within the base of support and when there is an equal distribution of weight to contralateral planes. In the human body, we consider two gross planes: the sagittal, dividing the body into right and left halves, and the coronal, dividing the body into anterior and posterior halves. It is readily appreciable that the right and left halves of the body should be symmetric and that the line of gravity should be the bisector of the body. Thus the mid-line of the body and the line of gravity correspond in the mid-sagittal or median plane of the body. In the coronal plane, the mid-lines of the trunk and abdomen would be divergent from the line of weight. These in turn would not correspond to the line of gravity. That is rather a component of several and pursues a course that Steindler[1] estimates passes just anterior to the talus, through the patella, mid-way between the sacroiliac and hip articulations, through the lumbothoracic and cervicothoracic junctions to the tip of the mastoid. Other investigators describe the line of weight as passing posteriorly to this, through the middle of the ankle joint, knee, lumbosacral joint, the tip of the shoulder and the mastoid process. On comparison of these two lines, it becomes evident that they are grossly parallel. However, the one that passes through the knee and shoulder makes the visualization of the equal distribution of the weight in front of and behind this line difficult. The line that Steindler[1] mentions is probably more in keeping with the facts, although the knee-shoulder line probably is easier of application on the patient.

The determination of the posture of the individual from the front or back is comparatively easy because of the symmetry. The coronal plane, front and back halves, however, presents some difficulty. People differ considerably in their habitus and even with a classification as to body build, a comparison with the supposed normal is unsatisfactory. The elevation of the chin or chest, prominence of abdomen, etc., make these factors too variable for a standardization. Photography entails some expense and considerable time, and radiography demands considerable expense, so that these are not generally practicable. Using equilibrium as a means of checking the posture has resulted in a method of analysing posture by comparing the weight distribution to the feet of the planes of the body.[2] Another method that has been adopted, almost to the exclusion of the others, by the Chicago College of Osteopathy, is the comparison of the tension of bilaterally symmetric muscle groups and antagonistic muscles necessary for the maintenance of posture. In other words, in general the muscles on the left half of the trunk are opposed to those on the right; the posterior muscles are opposed by the anterior muscles. A disadvantage of this procedure is the inability to portray the differences in such a manner that the patient can appreciate any but the

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grosser differences. A more detailed discussion of this analysis will be given under diagnosis of postural defects. It should not be inferred that the standing pelvic radiograph can be dispensed with. This method of examination of muscle tensions can be used to verify the need for x-ray study, or in cases where inaccessibility of x-ray laboratory or expense to the patient make the use of this accurate study impossible.

SIGNIFICANCE OF POSTURE

The significance of posture may seem small until we recall the inherent adaptive mechanism of the body. That our muscular and visceral systems are capable of standing great abuse without serious and permanent impairment is daily manifested. It is not unreasonable to assume that were we to operate at a maximum efficiency for muscle systems, our mental processes could expand, or we would be enabled to live longer to do our present amount of work. If we chose, we could do more in a lifetime either by lengthening our life or doing more in the given time or both. We are not yet adapted to the upright posture. This is evidenced by the following considerations:

1. The veins of the body are better adapted to quadruped than biped posture.

2. Visceral support is not most efficient.

(a) The heart is hung from the lung, and through the cervical fascia from the base of the skull.

(b) In quadruped position, the liver could be carried by the sling afforded by the abdominal muscles and the chest cage instead of from the diaphragm, heart, lung and occiput, to have some deleterious effect on respiration and circulation.

(c) The kidney, uterus and gastrointestinal systems are prone to circulatory disturbances from the standpoint of ptosis in biped posture.

3. Few if any of us have found it possible to maintain any erect posture which it is possible to assume for an appreciable period without exhaustion.

About this time in our discussion, the question of evolution presents itself. For the skeptic there are a few points that are difficult to explain.

1. The child crawls before he walks. It is well to encourage crawling as this develops cervical and lumbar curves.

The newborn present the prehensile great toe.

2. Anomalies of development are common. These have been credited by some as an attempt to accommodate to the new body position; the sacralization of the fifth lumbar as an attempt to stabilize the weak lumbosacral joint is an example. Cervical ribs are claimed to be hangovers from our ancestors. Whether the anomalous developments are an attempt to improve the function or an unsuccessful adaptation is a source of contention.

3. There are vestigial remains of muscle structures:

(a) Cervical fascia is the replacement of the levator claviculae, which muscles are found in some negroes.

(b) A fibrous strap joining the latissimus dorsi and the triceps muscles in the human is found in some Bushmen and monkeys as the dorsal epitrochlearis.

4. In the European as compared with the savage:

(a) The lumbar region is more stable but less flexible. Lessened lumbar curve is considered a sign of incomplete adaptation to the erect posture.

(b) In the more highly civilized the feet are larger, arches are better developed and higher, the calcaneus is stronger.

In spite of these evolutionary hangovers, there are certain definite benefits to be derived from an upright posture:

(a) Range of sight and hearing is increased.
(b) The hands are free for various uses.

Definite proof of the effect of poor posture on the health of the individual is lacking. This may be due to the difficulty of establishing the ideal normal. There are, however, some indications of the advantages of good body mechanics.

1. Chelsea Survey.[3] This survey of school children showed that the group of children who had posture training had better grades, less interference with elimination, fewer colds and acute exanthemata than those children who did not have the posture training.

2. The effect of posture on the basal metabolic rate:

POSITION OF PATIENT	% INC. IN B.M.R.
Standing, leaning on support	3
Sitting	5
Standing, relaxed	10
Standing, hand on staff	11
Standing at attention	14

3. Neuresthenia and enteroptosis are not as frequent an accompaniment of good body mechanics as of poor body mechanics.

4. It is commonly noted that some forms of physical activity are followed by a feeling of well-being explainable on the basis of the increase in circulation, the increased tonicity of muscle structures with the consequent increase in ability to meet faults in posture that demand muscle accommodation.

5. One rarely assumes a recumbent position in arguing. Singers and speakers rarely sit, because of the stimulation from the upright posture. The convincing carriage of good body mechanics does much to create a favorable impression. In other words, there is some relation between the posture of the individual and his mental processes.

DIAGNOSIS

The rôle of the osseous structures in weight-bearing necessarily is a passive one. In other words, for the temporary redistribution of weight-bearing as a result of any fault, the bones cannot of themselves adapt. It is for this purpose that the postural muscles are called upon. In a temporary assumption of a postural fault, muscle strength and ligamentous restraint readily make up for the defect. In maintaining this position, or in cases in which this condition is the body's adaptation to another fault in weight distribution, the continued demand on the muscle and ligament results in a state of abuse. In this connection, a postural fault becomes of grossly the same import-

ance to body physiology as does an osteopathic lesion. It is worthy of note that the presence of osteopathic pathology may interfere with accommodation or may demand accommodation and thus must be removed to permit the body its normal range of accommodation. As body mechanics as a whole must be considered in the application of corrective technic, so also must the osteopathic lesion be considered in the management of any postural problem.

The principles of palpation as used in the determination of the ordinary osteopathic joint lesion may be used in the diagnosis of faults in body mechanics. A routine, if followed, minimizes the possibility of overlooking any part of the procedure. The routine which we employ in analyzing the posture of patients is as follows:

Preparation:—Have patient standing with heels together in his stocking feet, hands at the side, and looking forward at an object at eye level. The patient should have his back bare and be so clothed that abdominal and intercostal muscles may be palpated.

Examination—

1. Feet: Palpate tone of muscles of sole of the foot and note elevation of the arch. This becomes important if one arch is dropped while the other is normal. Note any deformity.

2. Leg: Palpate lateral musculature, the peroneals, to note tension for comparison with opposite side. Palpation should be superficial and not sufficient to upset body balance. Unilateral tension usually indicates an attempt to displace the body weight to that side. It should be remembered here that with the so-called point of insertion of a muscle fixed, contraction of the muscle causes the origin to move.

3. Patella and Knee: Normally the patella should be without the tension of its tendon with the patient standing in a balanced position. The contraction of the popliteus muscle locks the knee joint in extension by producing a medial rotation of the tibia under the femur. Thus the need for the tension of the quadriceps femoris to maintain extension no longer exists and this muscle relaxes, leaving the patella relatively freely movable to palpation. While the lack of free movement of the patella is not absolute indication of a postural fault, its presence may be considered strongly to suggest body imbalance. Another means commonly adopted by the human to compensate a difference in weight distribution is that of producing a slight flexion of one knee thus shortening the total length of the lower extremity. To test for the presence of this slight flexion, a light tap on the posterior portion of the knee joint will cause the knee to flex. If the popliteus muscle is tensed and locking the knee in extension, this tap will not cause any flexion.

4. Thigh: The adductors on the medial side of the thigh and tensor fascia lata on the lateral side of the thigh are tensed in conditions of pelvic shift. The tensor fascia lata on the one thigh and the adductor group of the other thigh are synergistic. In case of a pelvic shift to the right, for instance, the tensor fascia lata on the right would be tensed first and if this was not sufficient, the adductors of the left thigh would become tense.

5. Bony Landmarks: Comparison of greater trochanters, iliac crests, and shoulders, and in some questionable or difficult cases the inferior angle of the scapula, the carrying angle of the arm and the folds of the lateral abdominal wall and ribs will afford information.

6. Palpation (superficial) of the Sacrospinalis Mass: Comparison of the tension and prominence of the structures of the spinal muscles on each side of the spine. These muscles act as guy ropes in maintaining the spine in balance as well as a position best adapted for weight-bearing. The spinal column carries weight but in many instances only by the help of some muscle power. The antagonistic muscles in the coronal planes are the posterior or spinal and the anterior or abdominal, intercostal and scalene muscles. In keeping with this, comparison of tension of the abdominal musculature of the right with the left side as well as the tension of both with the spinal muscles is noted. Intercostal muscles are subjected to the same analysis. Sternomastoids and scalenes are balancing mechanisms for the cervical spine in acting as antagonists to the suboccipital and posterior cervical muscles.

The location of muscle tension is important in a consideration of scoliotic or lateroflexion changes. If the muscles on the side of the concavity are contracted, they are responsible directly for the faulty position. If the muscles on the convexity are tightened, the curve is secondary to some other change and the muscles are trying to prevent deformity.

Inasmuch as many of the patients consulting osteopathic physicians could safely be assumed to present some fault in body mechanics, the question of the frequency of these faults in a cross-sectional group promoted the examination of posture of the following group of students: 855 grammar school children, 648 high school pupils, and 178 college students. This was made possible through the cooperation of faculty members of the Chicago College of Osteopathy and the members of the South Side Osteopathic Physicians' Society of Chicago.

The results of this work revealed:

CLASSIFICATION		% OF GOOD POST.
Grammar school	855	25%
High school	648	32%
College	178	45%

A comparison of the general posture of 297 colored children with the posture of a group of white children revealed that 29 per cent presented good posture, 22 per cent presented fair posture, and 49 per cent presented bad posture.

Of 114 white children examined by the same group at the same time, posture percentages were: 32 per cent good, 22 per cent fair, and 46 per cent bad.

There was not noted an appreciable difference between the posture of the girls and that of the boys.

Good posture was considered to prevail when there were no faults found or only one, in the postural examination such as has already been outlined Those having two or three faults in the structural examination were considered to have fair posture. Bad posture in this report signified three or more abnormalities were encountered. It is worthy of note that with the increased age of the group, posture tended to become better. This, however, should not give a false sense of security as even in the college

group, one out of two persons presented definite postural abnormality. There was a tendency for postural defects to become less frequent but possibly a little more severe in the older groups. It must be remembered that there is also to be considered the factors of growth and development in the various groups. The early grammar school children are still in a transitional change in which growth is comparatively rapid. Another period of rapid growth is encountered in the later grammar and early high school groups. An individual has reached comparative maturity by the time he is old enough to attend college. While not directly influencing the posture of a large number, this problem of growth must be borne in mind in the management of any postural fault.

The question of flat feet in relation to posture does not appear too great in view of the findings particularly in the group of college students. Although 42 per cent of 178 cases presented normal feet, as would be expected, many with normal feet presented poor posture. More important, though, are the findings that postural faults of the spine were noted in association with one flat foot in only 2.8 per cent of the cases while 3.3 per cent of the cases presented no spinal changes in spite of one flat foot. Both feet were flat with changes above in 6.7 per cent. Thus flat feet could possibly be related to poor posture in 9.5 per cent, but a small portion of the total number of students presenting poor body mechanics.

In regard to restriction of the patellae:

	Tense with Changes Above	Loose with Changes Above	Tense with no Changes Above
Grammar school	22%	57%	
High School	21%	33%	1%

Patellar fixation usually indicates pathology above, but its absence does not rule out the possibility of a fault in posture. It was an inaccurate gauge of the postural defect in but one per cent of the cases.

A comparison of the heights of crests, trochanters and shoulders of the group of grammar school children revealed:

1. CRESTS AND TROCHANTERS

Difference in height of crests or trochanters with postural defect in 33 per cent of cases.

No difference in height of crests or trochanters with postural defect above in 59 per cent of the cases.

Difference in height of crests or trochanters with no postural defect above in 8 per cent of the cases.

2. HEIGHT OF SHOULDERS

Fault in shoulder height indicated a postural defect in 53 per cent of the cases.

There was no difference in height of shoulders in the presence of a postural defect in 42 per cent of the cases.

There appeared difference in the height of shoulders without demonstrated postural defect in 5 per cent of the cases.

A difference in height of crests and trochanters or shoulders usually indicated some postural fault, inasmuch as these were inaccurate respectively in 5 and 8 per cent of cases. However, the absence of a difference in height does not rule out the possibility of a postural fault.

Changes in the spine occurred as a scoliosis in:

Grammar school 55%
High school 35%
College 34%

Abnormal anteroposterior curves were present either alone or with scoliotic changes in:

Grammar school 19%
High school 35%
College 40%

It is interesting to note the decreased incidence of scolioses and the increase in abnormal anteroposterior curves as the age of the various groups increases. It is unfortunate that the high school figures were obtained only for boys, but even without the effect of high-heeled shoes on the posture of girls, these figures seem significant.

LATERAL CURVES

The scolioses in the grammar school group of 855 were distributed as follows:

C-curves were present in 36 per cent of all students examined and represented 59 per cent of the scolioses.

Region	No. Convex to Left	No. Convex to Right
Lumbar	40	40
Thoracic	29	44
Cervical	30	26
Total curves	55	53

S-curves convex to the left in the lumbar, to the right in the thoracic region were about one-half again as frequent as S-curves convex to the right in the lumbar and to the left in the thoracic region. S-curves involving the thoracic and cervical were comparatively infrequent in comparison with the curves of the lumbar and thoracic. S-curves were present in 20 per cent of all cases and constituted 41 per cent of the scolioses. Seventy-four per cent of the S-curves involved the lumbar and thoracic regions.

ANTEROPOSTERIOR CURVES

Anteroposterior deformities were present in 19 per cent of the cases, frequently involving two regions of the spine.

Faults in the anteroposterior curves occur most commonly in the thoracic region.

	Extended	Flexed
Thoracic	21%	12%
Lumbar	11%	3½%
Cervical	4%	5½%

While generally the posture of an individual may tend to improve as he passes from childhood to adulthood, there is still a surprisingly large percentage of postural faults in the adult group.

On the basis of the figures from this limited survey, it would seem that the easiest type of accommodation, or the most frequent postural fault, is that of a C-curve, most frequently in the lumbar region of the spine. The next most common postural fault is that of an S-curve or crossed-over scoliosis which occurs most commonly in the lumbar and thoracic regions of the spine. Scoliosis is more common in the younger group, tending to correct itself probably as the individual becomes older. The incidence of faults in anteroposterior balance is greater in the older than in the younger group. The thoracic region is most frequently involved, extension being more common than flexion.

TREATMENT

The treatment of postural defects entails two gross considerations which vary depending on the severity of the changes:

(a) Patient activity

(b) Supportive or corrective measures

(a) The procedures that the patient himself can carry out to improve his posture are important in nearly all cases of postural defect, but meet with greater success in the minor postural abnormalities. Chief among these are corrective exercises and the use of a lift in the shoe.

(b) The more advanced and severe cases need some brace or cast to prevent further aggravation. A majority of the procedures commonly used for the correction of severe defects consider lateroflexion as the motion of prime importance. The comparative ineffectiveness of this procedure might suggest an approach utilizing rotation as the prime factor. The incidence of the severe types is small in comparison with the minor deviations. Omitting the grosser deformities as being of a nature requiring elaborate corrective procedures, we still have a goodly share of problems.

The numerous small defects of normal spinal curves in both sagittal and coronal planes brings up the question as to whether or not all of them should be corrected. Factors to be considered here are: age of the patient, degree and location of the deformity, and symptoms referable thereto.

Age of the Patient: Generally speaking, the adult patient is slower in response and, because of this, less apt to continue the procedures advocated, especially any exercise routine, as soon as he becomes symptom-free. The presence of an abnormality of vertebral curves in the adult does not always require treatment. There are some cases in which the individual has become well accommodated to the fault, and it would be unwise to interfere even though an attempt might be made to bring the patient to a condition more nearly approaching the ideal normal. The presence of symptoms referable to the condition or the presence of tension in the supportive structure with or without symptoms are the only indications for an attempt to improve the posture of the individual in respect particularly to scoliotic changes.

The frequent finding of good body mechanics in athletes is explainable on two counts. To become proficient in an athletic activity requires skill and muscle coordination. These two automatically lead to an increased efficiency. Few if any sports can be engaged in with excellence without practice and training. This constant maintenance of better tone and efficiency also enables the individual better to adapt himself to any postural fault requiring muscle function. The influence from this fact is not that exercise is important, but rather that muscle tone is the vital factor. If this can be maintained without exercise regularly and conscientiously applied there is no need for the daily specific of muscle activity. The inherent laziness of the race is conducive to a minimal expenditure of any effort, so our most useful measure for increasing the tone of muscle groups must be exercise. The most readily available type of exercise is calisthenics. It is the view of many physical educators that this is equal in value to exercise with apparatus such as weights, dumbbells, etc.

In elaborating an exercise routine there are a few basic principles to be observed:

1. Age, sex and physical condition of the patient. In the older individual where there has occurred some restriction of motion permissible in a young adult, knee bends become an ordeal rather than an exercise. The number of exercises may be graded as well as the severity. The female should modify the heavy exercises around the menstrual period. The cardiac patient would not readily tolerate a concentrated series of exercises.

2. Start a routine with easy exercises, working up to a number of comparatively difficult exercises and then tapering off gradually with exercises particularly of the breathing type.

3. Special corrective exercises should usually be interposed along about the middle of the easy group.

The field of corrective exercises properly belongs to the physical educator. Where there is available an individual grounded in work relative to muscle education and re-education, it might be possible to arrange to conduct a class in corrective gymnastics. This would be the ideal arrangement, inasmuch as it is common knowledge that a patient soon discontinues a series of exercises at home.

If an arrangement could be made whereby a physical educator could take one or a group of patients at regular intervals—say grossly three times a week—and supervise their exercise, the results should be more favorable.

In the absence of an individual capable of taking over the muscle re-education of the patient, the work must necessarily fall on the doctor to prescribe exercises and as nearly as possible to see that they are continued. So much for the principles to be observed in exercise.

One of the most useful aids in the correction of postural deformities is the use of a lift in the heel of a shoe, depending upon the amount necessary. It is generally considered safe to attempt correction for a difference in leg length by the use of a heel lift alone up to a height of three-eighths of an inch. Beyond this it usually becomes necessary to build up the sole at least partially. It has been found that the use of the postural examination already discussed, whereby muscle tensions are compared bilaterally, is quite generally an efficient means of determining the proper height of the lift. It is well to bear in mind that in a variable period of time, usually one or two weeks, the body may become adapted to this lift, at which time it may be necessary to increase or decrease it.

The use of a lift in either heel plus exercise is generally effective in many of the less severe scolioses. Another field in which change in the shoes becomes effective is a condition in which there is an altered anteroposterior curve, particularly in association with a spondylolisthesis. Here not only a decrease in the heel of women's shoes but also of men's has been found very effective. It is difficult to get women to wear low-heeled shoes, but once they become more comfortable with them they hesitate to go back to the high-heeled shoes. Men also tend to resist a deviation from the usual in the appearance of their shoes, but again definite relief is frequently obtained from wearing shoes with extremely low or no heels.

SUMMARY

A postural examination utilizing a comparison of bilateral muscle tensions has been found effective in determining the relative efficiency of body mechanics.

Postural faults are frequent in their occurrence. It would appear from the survey conducted on grammar, high school and college students that there tends to be a decreased incidence of scoliotic changes in the older children. There tends to be an increase in the incidence of faulty anteroposterior curves.

The treatment of postural difficulties is generally not too satisfactory, due to failure of cooperation on the part of the patient. If possible, the services of a physical educator should be enlisted to aid and supervise the exercises of the patient.

Treatment of existing lesion pathology to permit more ready adaptation is of definite help.

The use of lifts in either shoe to accommodate for a difference in leg length or to produce changes in the spinal column that will permit correction of lesion pathology has been found effective.

A change in the height of the heels has been found effective in caring for faults in anteroposterior balance.

5 East Court St.

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Osteopathic Manipulative Treatment of Nonsurgical Gall-Bladder

W. J. DOWNING, D.O.
Professor of Osteopathic Technic, Chicago College of Osteopathy
Chicago

The subject of this paper presupposes that improper diet and digestive disturbances, focal infections, toxins, heart and kidney disorders and the like have not been overlooked as contributory to the gall-bladder problem. For instance, Fishberg[1] has brought out the fact that frequently the hepatic veins are above the diaphragm rather than below it. This, in the presence of cardiac involvement (pericarditis), would tend to produce mechanical obstruction to venous drainage of the liver, and in turn involve the gall-bladder. Hence this would be primarily a cardiac, rather than a liver or gall-bladder, problem. Gall-bladder disease is rarely an entity in itself, hence these factors must not be neglected. This discussion, then, will approach the problem from the structural and mechanical (body mechanics) viewpoint.

A rather careful review of the literature for the last ten years, and particularly that from osteopathic sources, dealing with this problem from the structural standpoint, gives some interesting information. If the writings of McConnell,[2] Hoskins,[3] Peckham,[4] and a number of others a few years prior to 1934 were put together and coordinated as a whole, they would show a consideration of this problem equally as complete as appears in Goldthwait's "Body Mechanics,"[5] which first appeared in 1934. Yet we find no mention made by Goldthwait of anything in our literature pertaining to this field.

A description of osteopathic manipulative treatment of the nonsurgical gall-bladder is not easily described. Along with the gall-bladder we must take into consideration the diaphragm and the contents of the abdomen, particularly the liver. The gall-bladder problem seems to be basically one of stasis, either of its contents or of the circulation to the organ itself or both. This in turn involves the liver, general circulation, spine, and structural make-up of the patient.

Gall-bladder disease cannot be treated by rule, either from the manipulative or any other of the many phases of treatment that may be necessary. The treatment must be fitted to the patient.

Study of the literature referred to at the end of this paper will help refresh one's memory as to the physiological and technical reasoning back of the many manipulative methods necessary in treating the patient for gall-bladder and liver disturbances. It is impossible in this short paper to cover the subject adequately.

A few words about posture: The posture most advantageous for the normal hepatic and gall-bladder action would depend upon a spine with lumbar vertebrae mobile and in normal lordotic curve, and with thoracic vertebrae normally convex posteriorly with the ribs carried in slightly raised inspiratory position. Such a posture would include a mobile thoracic cage, in which the anteroposterior diameter is normal, resulting in normal tension of the anterior abdominal musculature and diaphragm. This is the ideal our treatment should produce.[4]

In faulty body mechanics, with the accompanying changes in the shape of the abdominal cavity, the faulty use of the diaphragm, and the lowered position of all the organs, the possibility of drag or pressure on the celiac axis and solar plexus is very great.[5]

The liver being held by its suspensory ligament is pressed downward and rotated forward and to the right. In the course of this rotation, the position of the fundus of the gall-bladder is changed so that it is lower than the cystic duct, thereby making free drainage of the gall-bladder more difficult; this also tends to produce more of a drag mechanically on the cystic, hepatic and common ducts as well as on the hepatic artery and vein. Chronic passive congestion of the liver and gall-bladder, as well as biliary stasis,

Fig. 1a—Shows position where flexion (or extension) has been secured between the two vertebrae involved ("the break"). Note that ischial tuberosities of patient are on table.

Fig. 1b—Shows position where rotation and lateral flexion to right have been secured to the limit of physiological movement for that articulation. Additional force in rotation may be applied here for correction. Note that ischial tuberosities of patient are still on table, and that thoracic axis is slightly to right of mid-line.

is a possible result from such malposition, if it is of long duration.[5]

We can readily see that it is necessary to include the liver in a consideration of the gall-bladder problem.

The circulation of portal blood is facilitated by directly stretching the diaphragm, by costal and thoracic mobilization, by manual or postural lifting of the abdominal contents, by deep breathing, and so on.

We know that the rate and force of the heartbeat is to a marked degree regulated by venous pressure in the vena cava. The pressure in the inferior vena cava is to a large extent influenced by the movement of the thoracic cage. The pumping form of manipulation so often applied to the liver in all probability has considerable effect in stimulating hepatic circulation through this mechanism.[4]

The region of the spine having greatest reflex influence over the circulation to the liver and gall-bladder is centered around the eighth and ninth thoracic vertebrae. The stimuli to these organs undoubtedly arises from many segments, the influence becoming increasingly greater nearer their spinal center. This center may possibly vary two or more segments in its position.[4]

We must look for osteopathic spinal lesions from the middle cervical to about the middle lumbar, but the probability is greater that the most important lesions will be found in the lower thoracic and is greatest that they will be found in the region of the eighth, ninth, and tenth thoracic vertebrae, including the ribs, especially the costovertebral junctions on the right side.

In view of the fact that no specific lesion or lesion type has yet been identified as specifically related to liver and gall-bladder dysfunction, it is impossible to describe the specific technic for it. We do know that involvement of spine and ribs from fifth to ninth thoracic should be kept in mind particularly.

Dr. Still says: "Where is the friction that is responsible for the trouble?" "He [the operator] will not be satisfied until he knows he has explored and corrected all nerve and blood supply, and the natural drainage of that organ."[6]

The problem of posture of the patient should be studied thoroughly and all factors that may be helping to produce or to maintain spinal lesions or improper position or stress upon liver and gall-bladder should be removed. This may take some time and effort, but it must not be neglected.

If we are dealing with an acute condition, we must give the patient relief with whatever modalities the condition calls for, but we must explain to him the necessity of caring for these other conditions as we progress with treatment.

If there is any doubt as to the possibility of suppuration in these tissues, we should confine our treatment to spinal work and to influencing drainage by careful treatment while the patient is in the knee-elbow position. Numerous articles have been written about direct treatment to the abdomen, the precautions to be observed, the care and consideration which must be observed in treating these tissues.

Articulatory or specific adjustive methods for intervertebral mobilization of the lower half of the thoracic spine are commonly understood. The same thing holds true for ribs. Enumeration or description of the lesions that may be found or the methods of correction that may be used is not possible here.

One well-known method that may be used for articulation or specific correction is as follows:

Patient sits astride end of table with his hands clasped behind lower part of neck to avoid cervical strain. Operator stands behind and to right of patient. He reaches his right hand under right arm of patient and grasps left arm, or point or top of left shoulder. Patient is instructed to lean forward permitting operator to support and guide weight of patient with right

Fig. 2a.—Shows hand of operator applied with thumb at angle of rib and second finger following around rib.

Fig. 2b.—Shows heel of left hand reinforcing thumb of right hand with fingers of left hand following second finger of right hand. Force has been applied until tissue tension or "slack" has been taken out. (See text)

arm. Flexion (or extension) is thus secured to segment or region desired and rotation and lateral flexion then produced, the degree of each depending upon requirements of tissues under treatment. Spine is kept well in the mid-line. Operator's left thumb on right side of spinous process or heel of hand on left transverse process or rib will further localize and augment necessary force to accomplish either articulation or specific correction. (Figs. 1a and 1b)

Following thoracic intervertebral mobilization, manipulative treatment of rib structures is indicated. Fibrosis and general rigidity of the lower ribs can be overcome readily by the following method:

Patient lies on left side on treatment table near operator's side of table, left arm behind, right arm at right angle to body, with forearm directed upwards, knees well flexed, thighs flexed on abdomen, with right knee above left and resting upon table. Pillow may be placed between patient's thorax and table. Operator stands behind patient with thumb of right hand at angle of rib and first or second fingers following around rib. Heel of left hand may be placed on thumb of right hand to augment and more carefully control force. (Figs. 2a and 2b)

Force is spread with hand along rib, with a little more applied at angle. It is applied gradually and directed upwards and laterally until tissue tension or "slack" has been taken out, allowing patient to roll slightly forward. Rib is gently "sprung." It is at this point that articulation and breaking down of fibrosis takes place. Release force slowly. Each rib is treated individually. (Fig. 2b)

Another method: Place patient directly on left side, with knees and thighs moderately flexed. Operator stands in front of patient with right hip or thigh against patient's right shoulder, his left hand applied to patient's right anterior superior spine. Operator's right hand is then used as a fulcrum and applied against angle of rib, using heel of hand along the rib and directing the corrective force as it is found necessary. Force is accumulated gradually until tissue "slack" is taken out, then augmented to "spring" rib or in nature of a thrust if that is necessary. Counter-force with left hand to patient's ileum is varied as it is found necessary. (Fig. 3)

Treatment of the anterocostal margin can be given with patient in above position. Operator stands behind patient with right foot on stool, knee applied through pillow to angle of ribs on right side of patient. Then with pads of fingers of right hand carefully applied below and under margin of ribs, carefully and gently raise them upward and outward against counter-force of knee. This is aided by abducting right arm of patient and at same time asking him to breathe in deeply and slowly. The indications, contraindications, and advantages of this method are obvious. (Fig. 4)

In all circulatory disturbances of the bile duct and other hepatic tissues, with the patient in the knee-elbow position, we can loosen the hepatoduodenal ligament and other tissues and help stimulate the flow of fluids in the portal vein, hepatic artery and bile duct. We use the pads of our fingers, move slowly and study the tissue carefully for the response to treatment.

Direct treatment through the abdominal wall may be given with the patient on his back, head slightly elevated, knees bent and feet supported to keep them from sliding downward on the table. This helps to secure better relaxation of the abdominal wall. Gentle, firm pressure with pads of fingers (or thumbs) should be used at first until we are thoroughly familiar with the tissue condition under our fingers. We press slowly but firmly over the region of the ducts, then execute a downward motion with firm pressure over them toward the duodenum. Many times the gall-bladder can be definitely outlined. This should be repeated several times, until the tenderness and tissue tension in this region is almost or entirely relieved. This procedure allows the operator finally to get as close to the ducts as it is possible, to reduce the congestion, and at the same time to remove or "milk out"

Fig. 3.—Shows how force may be applied sufficient to take out "tissue slack." Patient's right shoulder rolled slightly forward and fixed by thorax of operator. Heel of right hand applied firmly to rib and position held. Then counter force against anterior superior spine is applied.

Fig. 4.—Position of patient just before asking him to breathe in deeply and slowly to aid further in raising ribs.

any mucus from the duct or orifice, thus allowing a freer flow of bile. We must be patient, manipulate slowly and give the duct time to dilate.

Stimulating circulation through the liver may be done with the patient on his back, knees flexed and abdomen relaxed as above.

Operator stands on right side of patient, left hand at angle of ribs posteriorly at level of liver, right hand spread and applied over ribs anterolaterally. Two movements may be used: hands may be approximated slowly and suddenly released, or hands may be synchronously and quickly moved up and down maintaining moderate pressure and shaking the liver between them twenty to thirty times.

Some operators prefer to use this method while standing on the left side of the patient. It seems preferable to stand above and as near the weight handled as possible. This permits use of body weight, and saves the energy of the operator.

SUMMARY

Gall-bladder disease is rarely an entity in itself, hence the patient and his problem present a variety of conditions that must be treated. Treatment from the structural standpoint has been considered in an attempt to emphasize the influence that body mechanics may have upon the production or maintenance of spinal and rib lesions with or without accompanying malposition of organs which may eventually produce chronic passive congestion of the liver and gall-bladder, as well as biliary stasis. Adequate treatment from the structural standpoint necessitates consideration of the patient as a structural unit, as well as consideration of lesions involving spinal centers exerting control over liver and gall-bladder and direct treatment of the liver and gall-bladder.

1305 E. 63rd St.

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THE SOCIAL SIDE OF MEDICAL PROGRESS

It isn't what medicine does, it isn't what science discovers, that gives the necessary high public regard to the physician. It is what the public thinks and believes. And the public attitude reflects the doctor's own opinion of himself. If he thinks of himself as a scientist, he will be treated as one; he will be held in the same regard in which the physicist, the chemist, and the engineer are held. If he believes, as he should believe, and shows that he is a leader toward social betterment, worthy of public regard, he will receive that regard. These are matters of emotion and not of reason.—Howard W. Haggard, M.D., *Minnesota Medicine*, October, 1938.

"Clear Your Thinking of All Preconceptions"

GET INTO THE WORK TO ADVANCE OSTEOPATHY

I take the words quoted above from Dr. Thomas R. Thorburn's message in the September JOURNAL.

We charge opponents of osteopathy with getting a fixed idea and refusing to consider any other. Even friends of osteopathy get wrong ideas and do damage to themselves and us by failing to clear their thinking. Let us not be victims of the same fault.

The Committee on Public and Professional Welfare of the American Osteopathic Association is well into its third year. It has many friends, but few of them are well informed as to the broad scope of its efforts. They need to clear their thinking of narrow preconceptions. Too many are merely tolerant to this great movement—because they, too, have not cleared their thinking. If there are members who misunderstand, or only half support the work of the Committee, they are few, but they, too, need to clear their thinking of preconceptions. The way to do this is to look squarely at the Committee's program and its accomplishments—listen to its story. Where? How?

Nearly half the states and provinces will hold conventions within the next few weeks. District and local societies in some of these and in many other states will be meeting. Reports of some of the activities of the Committee are being distributed to be presented before these gatherings, to help us clear our thinking of all preconceptions and get a picture (shall I say, a vision?) of what it is all about. To the few who cannot attend any of these meetings, these brief reports are available for the asking—but it seems more efficient to present them wholesale to groups, wherever possible.

I said these reports cover "some of the activities of the Committee." A complete picture cannot be printed because the work is so varied that it would take a book, and nobody has time, with the many other things needing to be done, to write that. It would mean slowing up or stopping some vital effort.

If you are going to be at a convention soon, you will do well to write now to the program chairman or some other officer asking whether the activities of this Committee are to be explained there. In case of a negative answer, write to Dr. Thomas R. Thorburn, Chairman of the Committee, or to Dr. Russell C. McCaughan, its Secretary, asking for an outline. I cannot go into detail here, but this much can be said:

The Committee on Public and Professional Welfare has undertaken a task which is an innovation. Always, an innovation must be explained and re-explained to most of the people. So the Committee, handicapped by being undermanned and underfinanced, had three simultaneous tasks: (1) To explain the things it was doing; (2) to raise funds to do those things; (3) to do them. Not all of these could be done, nor any one of them adequately.

As to the first: Scarcely a divisional society has a clear idea of any one of the many undertakings of the Committee, for the simple reason, among others, that if the Committee had diverted its energy to tell the whole story, the work itself must have slowed or stopped.

The Committee on Public and Professional Welfare, counting in advisers, includes the President of the A.O.A., the President-Elect, two former Presidents, the Executive Secretary, the Chairman of the Public Relations Committee, the Editor, the heads of the two departments, and several trustees.

It was set up to be a national central committee, to correlate the work of our institutions, integrate their activities, and activate the efforts to further their development. Its plans are made subject to approval by the Trustees and House of Delegates. These plans look to general professional improvement in the way of colleges, hospitals, public service and other things which call for endowments, to arrange for a stupendous campaign of research, for splendid motion pictures, for a campaign of radio education far in advance of anything we have undertaken, and for other forward movements.

The organization of the Committee was made possible by the work and contributions of a small number of osteopathic physicians, several of whom voluntarily contributed from $100 a year down, in addition to their dues and their work. Osteopathic physicians who ordinarily support their professional organizations have willingly contributed funds and effort year after year, sometimes more in one state, sometimes more in another, and many of them feel they have gone as far as they can simply to support the work already undertaken. It seemed absolutely necessary to spread the load by enlisting the interest of greater numbers, and by increasing the amounts paid by the rank and file. In short, it was impossible to expand further the tasks already undertaken while A.O.A. dues stayed at $10 a year. Every new member got a JOURNAL subscription, a Directory, etc., so that increasing numbers brought correspondingly higher costs. So the House of Delegates voted to set A.O.A. dues at $20, and more and more states are taking action to raise their dues or markedly to increase their membership or both. Some states regularly devote a stated share of dues or of income to the support of the Committee on Public and Professional Welfare.

But in the meantime, and even now, the only way the Committee could and can be financed is through the voluntary contributions I have mentioned, many individuals paying $100 a year or more, while others have paid $75, $50, $25, and so on down, in addition to their dues and the work they contribute. Some have made such payments annually now for three years, and are pledging the same for another period. Those who have paid little or nothing to this vital work are urged to clear their thinking of all preconceptions, study the Committee's aims and accomplishments, make a pledge and a contribution, and get into the work which is directed to advance osteopathy in the life of the profession and of the public.

F. A. GORDON, D.O.
President-Elect.

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Volume 2 October, 1939 No. 3

THIS ISSUE OF THE SURGICAL SUPPLEMENT

This number of the Surgical Supplement is the work of various members of the staff of the Los Angeles County Osteopathic Hospital. It includes articles on a variety of surgical subjects planned under the supervision of, and collected by, Dr. J. Willoughby Howe, Surgeon-in-Chief. The papers have been prepared not primarily for the surgical specialist but for the general practitioner, carrying out the expressed policy of the American College of Osteopathic Surgeons to include in its Surgical Supplements the type of material conducive to closer mutual understanding between the general physician and the surgeon who have to do with the handling of surgical cases.

More papers were supplied than could be used, the Surgical Supplement being limited to 16 pages. Articles by Drs. J. Gordon Hatfield, Andrew R. M. Gordon, Lucius B. Faires, and J. Willoughby Howe appear in this issue. Those submitted by Drs. William O. Gamble, Roy D. Kohl, J. Francis Guyton and Philip T. Hoeffer will be published in a future issue.

It is fitting that this number appears at the time of the thirteenth annual convention of the American College of Osteopathic Surgeons in Los Angeles. Many of the contributors received all or part of their surgical training in the Los Angeles County Osteopathic Hospital, where some of the surgical clinics during the convention, October 1 to 5 inclusive, will be held.

A REVIEW AND A LOOK AHEAD

With the publication of this number, the second volume of Surgical Supplements is completed. The first Supplement appeared in the January, 1938, issue of THE JOURNAL OF THE AMERICAN OSTEOPATHIC ASSOCIATION; it contained a symposium on fractures and an historical resumé of the American College of Osteopathic Surgeons. Subsequent issues took up the subjects of urological surgery, cancer and irradiation, leukemia, childbirth injuries, diagnosis in right-sided abdominal pain, pre- and postoperative treatment and a few others.

The decision must soon be made whether the Surgical Supplement is to be continued. Since the purpose of the Supplement is to promote better cooperation between the general practitioner and the surgical specialist, an expression from the general practitioner as to whether or not they have found it of value and if the Supplement is to be continued what subjects would interest them most would be in order.

Diagnosis is probably the most important subject with which any physician should be familiar. Greene says: "Diagnosis means more than merely naming a disease. It demands such accurate subclassification and intelligent, painstaking individualization, as necessitates a knowledge of etiologic factors, the nature and sequence of pathologic changes, the effect of age, occupation, residence, habits, heredity, past ailments, and even of the constitutional peculiarities and personal characteristics of the individual." Too many of us are inclined to make "snap" diagnoses based upon some obvious or striking signs of apparent conclusive significance. Many complex cases are encountered in which several ailments are concurrent and the obvious diagnosis may not represent the lesion of chief importance in the given case. Drs. Faires and Gordon bring out this point clearly in their articles in this issue of the Supplement.

The responsibility of diagnosis rests primarily with the general practitioner. Usually he is the first physician called. Upon his judgment rests the decision whether or not the condition of the patient requires the services of a surgical specialist.

When the surgeon enters the picture, however, the responsibility of the case is not automatically transferred to him entirely. On the contrary, the responsibility should be shared by both the referring doctor and the surgeon. The general practitioner often knows the peculiarities of his patient, especially if he has been that individual's family physician for years, and therefore is in a position to give valuable aid to the surgeon. For intsance, the general practitioner should be able to offer suggestions which will help in deciding what preoperative care is necessary, the type of anesthesia which will be tolerated best, and the probable postoperative care that will be necessary, all of this based upon his knowledge of the present condition and the patient's physiologic reserve. Some of this information must be obtained, of course, by the usual laboratory procedures, physical examination, etc., which must be done before rendering a diagnosis and before the decision is made for operative intervention. However, what is very important is that if a spirit of understanding and cooperation exists between the attending physicians, it is conducive to the best interests and morale of the patient.

It would seem, therefore, that the general practitioner and the surgical specialist must work hand-in-hand. As a medium of education, the Supplement is attempting to stress this important relationship. The American College of Osteopathic Surgeons is eager to provide the kind of material which will promote this cooperation, by clarifying such subjects as may be perplexing. Let us have some expression from the profession as to how the Supplement may carry out its policy to the best advantage.

Correction—A typographical error appeared on page 25 of the Surgical Supplement for April in the article on "Postoperative Treatment." The sentence beginning on line nine, second column, should have read: "This is to be repeated every *four* to six hours as indicated."

Carcinoma of the Uterus*

J. WILLOUGHBY HOWE, D.O.

Surgeon-in-Chief, Los Angeles County Osteopathic Hospital

Los Angeles

Of all the diseases to which the human flesh is heir, there is none which strikes so much terror as cancer. It is no respecter of persons, creeds, races, or colors. It is found in the hovel, mart, and palace. For years it was considered a disease only of the aged, but recent studies reveal that cancer attacks mankind from the cradle to the grave.

Carcinoma of the uterus occurs in both the corpus and the cervix, but is very much commoner in the neck than in the fundus uteri. Carcinoma of the cervix includes those lesions in the mucosa, muscularis, and serosa of the vaginal cervix from the internal to the external ora inclusive. About 93 per cent of them are epidermoid or squamous-cell type, while 3 to 5 per cent are adenocarcinomata. On the other hand, cancers of the body of the uterus are about 98 per cent adenocarcinomata.

Cancer attacks the uterus more frequently than any other part of the female. In fact 30 per cent of all malignancies in women are found in the uterus (Welch, Orth, Williams, Cutler). Of the uterine cancers, Bonney says, three are of the cervix to one of the body. Nye says it is more like 9 to 1, while Cutler says the proportion is 15 to 25 per cent of the body to 75 to 85 per cent of the cervix.

Cancer is found in the uterus from 2½ years of age (Adams) to senility; most often the cervical type begins after 35 years of age, and the corporeal type begins after the fiftieth year of life. Cancer of the cervix is most often found in childbearing women, while cancer of the body is much more often found in the childless. Cutler notes that cervical cancer is exceedingly rare in Jewesses, but I have treated a number of them; so I know they do occur.

Etiology.—Cancer and its cause or causes have taxed the ingenuity of the research workers of the entire world for years. Year in and year out these toilers tirelessly work to rip the truth of cancer and its cause from inscrutable nature. While it is true that they have not yet succeeded, they certainly are closer than ever before to the great discovery.

(1) Chronic Irritation: One great soul years ago brought forth the finding that chronic irritation was the cause of cancer. Later this was abandoned as untenable because he thought the cancer cells arose in the connective tissue. Years later the theory again became popular, and there is strong evidence to the effect that chronic irritation does play a part in the cause of cancer.

(2) Bacterial: For years it was thought that a micro-organism was the etiological factor. Workers transplanted cancer from one animal into another and because the new host died of cancer, it was considered transmissible. The cancer which grew in the new host was an enlargement of the transplanted one and not a new growth. Investigators now think a filterable virus may be responsible.

(3) Genetic: Hammett believes that the potentiality for malignancy lies in the hereditary determination of lines of cells retaining the embryonic characteristic—a heightened sensitivity to the essential stimulus to proliferation of cells, sulfydryl, and that the development of malignancy depends on the presentation to the potential tumor producing cells of an adequate concentration of this chemical group.

(4) Embryonal Rests: People thought that because they grew up and prospered, all embryonal development was followed by an orderly sequence of growth in perfect coordination. To prove that this is not always true one has only to look at the cases of cleft palate, congenital hernia, spina bifida, etc. These congenital anomalies often become malignant. The cancer cell is already present; it is awaiting the proper stimulus to start growing into a malignant tumor.

(5) Chemical: Gas tar, coal tar, and soot have caused cancer when applied to mice in the laboratory Hormones may now be placed on the black list because the administration of theelin has resulted in cancer. Another strong suspicion points to those substances which contain the anthracene ring. It is most interesting to note that theelin, aniline dyes, coal tar, soot, and gas tar all belong to the list which contains the anthracene ring.

(6) Trauma: Trauma is not blameless. A single severe injury has frequently been followed by the development of a bone sarcoma. Of course not all trauma can be accused of causing cancer; if that were so, all of us would develop it.

I believe the causes of cancer are many and varied. I feel that when all the influences necessary for its development are present, i.e., chemistry, trauma, cell rest, heredity, irritation, and individual susceptibility, the individual will be the unwilling host of a malignant growth.

Cancer of the Cervix.—There are two main types of this disease (1) infiltrating, and (2) proliferating or cauliflower. The infiltrating type may be well advanced before any symptom draws attention to its presence. The proliferating one is more easily seen because it gives an early characteristic lesion on the surface of the endocervical canal (tiny bunches of tinier grapes).

Symptoms.—The earliest symptom experienced by those who suffer from cervical malignancy is hemorrhage and a thin watery pathognomonic discharge. Hemorrhage which occurs after complete

*Delivered before the Obstetrics and Gynecology Section at the Forty-Third Annual Convention of the American Osteopathic Association, Dallas, June 26, 1939.

cessation of the menses is almost always diagnostic of cancer. This is not to be confused with the more or less irregular bleeding so frequently seen during the climacteric state. We see those whose menses stop as suddenly as they began, those whose periods became increasingly scanty, until finally they stop entirely; and those whose monthly visitations stop for a period of from 3 to 12 months, and then start again for awhile before a complete cessation. Failure to examine thoroughly cervices of all patients presenting post-climacteric hemorrhage is gross neglect indeed. Cutler mentions that some authorities decry the stressing of thorough examinations for fear of increasing the incidence of cancerophobia. He answers them with Berkeley's "It is better to be nervous than dead." In my own experience I find that the majority of women have the cancerophobia when they come, and it is only after a very thorough examination that they are content to leave the fear behind them. The thin watery discharge becomes darker in color and very offensive in odor as the malignancy invades more and more tissue. Patients see this bleeding and discharge and often fail to mention it until the period of curability is well-nigh spent. Few of them come for treatment soon enough, and many of them choose physicians who fail to recognize the gravity of the situation. Nothing is to be gained by delay except the grave.

The disease is spread through the lymph channels into the lymph nodes of the pelvis. There is an extension of the disease downward in the vagina, forward in the bladder, and backward in the rectum by contiguity of tissue, and very rarely upward in the uterine fundus. In the late stages metastatic growths are found in the bone, lungs, and liver, resulting in pain. Pain is a late symptom and is caused by the invasion of the disease process into the other structures of the pelvis.

Diagnosis.—Diagnosis of a well-advanced malignancy is as easy as its cure is difficult. One look usually will suffice. It is the diagnosis of the early and small invasions which will tax one's skill and understanding. The diagnosis depends on a careful analysis of symptoms, signs, palpation, Schiller's test, inspection, and biopsy.

With a good light, atraumatic instruments, adequate exposure (with, if possible, a Hinselmann Colposcope, and the staining by Lugol's after Schiller) one will at least see the site for a biopsy. The biopsy should be done on every case of suspected cancer and should be large enough for complete laboratory examination. I like the use of the electric cautery with loop point for the growths on the accessible regions of the cervix and a small sharp curette for those in the endocervical canal.

Classifications: There are three recognized classifications, Nye tells us. He says that the League of Nations classification is much too complicated to be of practical value and recommends the Schmitz grouping instead. I have copied it as follows:

Group I. A nodule or ulcer not over 1 centimeter in diameter, with normal mobility of the uterus and adnexa.

Group II. An involvement of one-half or more of the cervix, with or without a slight decrease in the mobility of the cervix.

Group III. Tumor or crater of the cervix, with rigidity of the adjacent tissue and involvement of the parametrium, or the regional lymph nodes or both.

Group IV. involvement of *(a)* the parametrium and the regional lymph nodes, and fixation of the uterus, *(b)* the bladder, rectum, or vagina, and *(c)* distant points.

Prognosis.—If treated early and adequately, one has two out of three chances of being cured, while one has only one chance in a hundred when treatment is applied to the late stages or when inadequate treatment is applied to any stage. According to Schreiner and Wehr, and others:

	Schreiner & Wehr 955 Cases	Ward & Sachett 457 Cases	C. C. Norris 153 Cases	Schreiner & Wehr 955 Cases	J. Heyman 1557 Cases
Group I	64.8	66.5	44.8	63.1	57.5
Group II	32.7	50.6	26.3	32.7	34.3
Group III	18.2	19.6	20.6	17.8	16.2
Group IV	1.1	0.1	10.6	1.0	5.3

These were treated years ago when irradiation therapy was new. There is every indication that the cures will be increased in the future.

Surgical Treatment.—The radical operation (Wertheim) is applicable in about 45 to 60 per cent of all groups, and there is a primary mortality of 15 per cent. It gives about 40 to 45 per cent relative cures and about 17 to 27 per cent of absolute cures. Under the most favorable circumstances, the primary mortality was as low as 6.5 per cent with a relative cure of 80 per cent; whereas in cases of borderline operability, the primary mortality has been 30 per cent; and the five year relative curability 25 per cent. (Cutler and Buschke.)

Irradiation Therapy.—The brilliant results of irradiation therapy in the treatment of cancer of the cervix are indeed gratifying. No other field of irradiation endeavor has been crowned with such unqualified success. Co-operation between workers in far-flung outposts, careful and elaborate data correlated, successes and failures reported alike, all have tended to more fully standardize methods in this than in any other branch of irradiation therapy. The accessibility of the area for irradiation, the relatively high tolerance of the pelvic tissues to the modality; and the fact that both radium and x-ray are utilized, undoubtedly play a considerable part in the success of this particular type of treatment. The radium is used in the cavity and the x-ray through the pelvis, not antagonistically but co-operatively; one (radium) for the destruction of the primary lesion, and the other (x-ray) for the prevention of the invasion of tissues other than the cervix.

The thing to remember in this disease is that one makes an impression on it only when radical measures are invoked. It is better to leave it alone (to be treated by someone else) than to make faces at it by inadequate irradiation or a gentle cauterization. This form of treatment will end disastrously.

Certain patients undergoing irradiation therapy suffer from nausea, vomiting, pain in the joints, and anemia. I find that large quantities of vitamin B, liver extract, and iron are grateful in the extreme. A patient who is pregnant and suffering from malignancy should have the pregnancy terminated at once.

Cancer of the Fundus Uteri.—This is a malignancy which begins in the endometrial glands of

the uterus above the level of the internal os and is usually adenocarcinoma. The symptoms are very much the same as those of cervical cancer. First there is the watery, bloody, or leukorrheal discharge which is intermittent, in contradistinction to the flow of cervical cancer. The pain in this condition comes on even later than in cancer of the cervix.

Types: There are two types of cancer of the body of the uterus: the first is the exfoliating or papular type, which may enlarge and fill the cavity and bleed very freely. Often this type gives rise to a diagnosis of cancer of the cervix, or a uterine polyp, because of the appearance of the papillary material in the cervical canal. Due to the fact that this type of malignancy does not invade the muscularis of the uterus and thus spread into other parts of the body, a total hysterectomy is curative.

The second type is an infiltrating one. It spreads through the musculature but seldom through the serosa until the late stages. It remains somewhat within a limiting membrane and is amenable to treatment by surgery.

Cancer of the body of the uterus tends to spread downward into the cervix by direct contact of the papillary contents of type one, or by lymph channels as in type two. It also spreads into the tubes and ovaries by tissue continuity and contiguity as well as by the lymph stream.

Diagnosis: All post-climacteric bleeding should be investigated. If the examination as outlined for cancer of the cervix is not productive of a cause, a curettage of the endometrium should be done, and the specimen sent to the laboratory for examination.

We are told that 6 per cent of fibroids break down and become malignant (3 per cent sarcoma and 3 per cent carcinoma) at the menopause. The fact that most of the malignancies occur just after the climacteric does not alter the fact that cancer of the uterus may be found at any age. I distinctly remember my first case of cancer of the body of the uterus. The patient was a young woman of 27 years of age, the mother of two young boys. Her bleeding was most irregular, and she was never sure whether she was pregnant or not. During one particularly severe hemorrhage, I put her in the hospital and curetted her. The laboratory findings were adenocarcinoma of the exfoliating type. I did a complete hysterectomy, and she is alive and well today thirteen years later. If the curettage is not productive of a malignancy report in a suspected case, we must think of carcinoma of the ovary.

Beclere says carcinoma of the body of the uterus often starts where it is difficult if not impossible to curette successfully. He devised a plan whereby lipiodol is injected into the cavity of the fundus and an x-ray picture made. This shows up any change in the cavity, especially toward the entrance of the fallopian tubes to the uterus.

There are so many early intrauterine malignancies discovered in the laboratory following the removal of a uterus for fibrosis uteri that I now do a complete hysterectomy in all cases. There is too much danger of recurrence of the malignancy of the cervix to take a chance.

Prognosis.—The prognosis is very much more favorable than that of cancer of the cervix.

Treatment: In contradistinction to the treatment for cancer of the cervix, surgery rather than irradiation is very much to be preferred in cancer of the body. Even Cutler and Nye approve of this statement. However, they believe irradiation in conjunction with surgery is the treatment of choice. We have used the irradiation post-surgically in the past, but Healy has pointed out that preoperative irradiation is very much its superior. Bonney says that of all sites of carcinoma, the body of the uterus is the most favorable for operative treatment. Scheffey thinks irradiation alone will supplant surgery. The operation should be by the abdominal approach and consist of the removal of all the uterus, a ring of the upper portion of the vagina, both tubes, and both ovaries.

The Wertheim operation for the removal of cancer of the cervix is much more difficult. In it all the uterus, half of the vagina, all the pelvic glands, the cellular tissue adjacent to the cervix, both tubes, both ovaries, and all fat and glands lying in the obturator fossae and along the external iliac veins must be removed. There is no wonder the death rate is so high. In the hands of men like Bonney and Werner, it has a high rate of cures; but if irradiation is better, why not use it?

The role manipulation plays in the treatment of this most dreaded of all ills is one of sedation. A gentle manipulation to the back of a sufferer who has undergone a severe operation is balm indeed. The refreshing glow following a well-directed manipulative effort is gratefully acknowledged by the patient who is wearing a series of radium needles. The relaxing influence of manipulation on the patient is very grateful. The long hours are brightened, pain is lessened, a new interest is awakened, and the patient feels better. When the other types of treatment are in process of fulfillment, manipulation does its stint for the patient's well-being. And while manipulation cannot make any claims for cures of cancer, it does make the patient more comfortable while waiting for the cure.

SUMMARY

(1) Cancer is curable if diagnosed early and treated adequately.

(2) Cancer of the uterus, while chiefly a disease of middle life, attacks women of all ages.

(3) Hemorrhage without pain after menopause probably means cancer of the cervix, and if intermittent, is probably fundal cancer.

(4) Every woman past 30 years of age should have a thorough examination of the cervix.

(5) Schiller's test is valuable even if it shows only from where to take a biopsy specimen.

(6) The fear of increasing cancerophobia in women is not a valid objection to adequate examination for cancerophobia is far less dangerous than missing the early diagnosis of a cancer.

(7) The treatment of cancer of the cervix is irradiation, with both radium and x-ray.

(8) The treatment of fundal cancer is a combination of surgery and irradiation.

(9) Treatment of cancer must of necessity be radical. If one does not want to treat it radically, he should send the case to some one who will.

6331 Hollywood Blvd.

REFERENCES—See page 48

Posterior Gastroenterostomy With and Without Gastric Resection as Treatment for Peptic Ulcer

J. GORDON HATFIELD, D.O.

Junior Surgeon, Los Angeles County Osteopathic Hospital

Los Angeles

Fortunate is the patient whose peptic ulcer is readily amenable to conservative treatment! Recurrence is of such frequency that often the patient must receive the attentions of the dentist, the throat specialist or the surgeon in addition to those of the internist. Normal gastric or duodenal mucous membranes are undisturbed by frequent bathing with gastric juices, but let the resistance of those membranes to the digestive action of those juices be lowered, and ulceration is imminent. Below the ampulla of Vater, neutralization of gastric juices occurs; hence peptic ulcers are confined to gastric and upper duodenal mucosae.

The etiology of lowered mucosal resistance is varied, and perhaps multiple in each case. Focal infections have been demonstrated in numerous ulcer patients, with permanent recovery only after infected teeth, tonsils or sinuses have received adequate care. A strain of *Streptococcus viridans* is the most consistent offender. This organism is frequently found in the focal infections just mentioned. Hematogenous infection is probable. Particularly interesting to the surgeon is the theory of reflex irritation from the right lower quadrant of the abdomen by way of the vagus nerve and splanchnics.

Animal experimentation gives supportive evidence to the theory that ischemic erosions can be produced by section or stimulation of either or both vagi above or below the diaphragm.

Similar results follow section or stimulation of the splanchnics arising from the coeliac plexus. Controversy regarding vagal hyperactivity or sympathetic hypoactivity resolves itself into the recognition of an imbalance between the two systems.

I, personally, have seen many cases of persistent or recurring peptic ulcers gain permanent relief following appendectomy and correction of right lower quadrant deformity. The surgeon who overlooks the latter condition, permitting heavy adhesive bands partially to immobilize the cecum or terminal ileum, or who does not section a Lane's kink which is distorting the ileocecal junction, is jeopardizing the future comfort of his patient and earning for himself the reputation of doing unsuccessful, unnecessary surgery. Correction of adhesions involving the sigmoid is likewise imperative.

Surgery as a curative agent for peptic ulcer came into existence in 1881, when Woelfler introduced gastroenterostomy. His technique required a long loop of small intestine which was brought up and around the transverse colon for anastomosis to the anterior surface of the stomach. Total or partial pyloric obstruction was the incentive for the first gastroenterostomies. Woelfler's cases, those fortunate or unfortunate enough to survive surgery, presented severe postoperative vomiting.

Von Hacker, in 1885, is credited with improving gastroenterostomy by the method of posterior anastomosis. Through an opening in a "bloodless arc" of mesocolon, a long loop of jejunum was anastomosed to the posterior stomach wall. Persistent postoperative vomiting was again encountered, due undoubtedly to partial obstruction of either the afferent or the efferent loop of the jejunum.

Improved general surgical technique resulted in a drop from a mortality rate of 70 per cent in 1885 to 38.7 per cent by 1892.

Peterson, in 1900, employed the so-called "no loop" technique, wherein the anastomosis is made on the jejunum a short distance distal to the ligament of Treitz, using only a sufficient length of small intestine to insure no undue pulling on the site of suture.

Site of the stoma has varied considerably with different operators. Some choose to place the opening low near the pylorus; others favor the higher anastomosis. In an atonic stomach, the lower position is most favorable for drainage as well as for neutralization of the acid stomach content by the alkaline juices poured into the ampulla of Vater.

Contracture of the stoma may occur, hence the advisability of an adequate opening at the time of operation. A seemingly unduly large stoma will not permit too rapid emptying of the stomach because the rate of emptying is dependent upon the size of the efferent loop of intestine.

Posterior gastroenterostomy sometimes fails to relieve duodenal ulcers because food tends to follow the natural channels as long as the pylorus remains open. This fact has encouraged the development of technique whereby the pylorus is closed or the pyloric end of the stomach is resected.

Partial gastric resection, as a successful operation, was first reported by Billroth in 1881, although Péan had reported pylorectomy for cancer in 1879.

Billroth, in his first operation, united the duodenum to the pyloric end of the resected stomach. Due to extreme difficulties, this operation has been replaced by the Billroth II operation in which the duodenum is anastomosed to the stump of the stomach, or the stomach is closed and a posterior gastroenterostomy is done.

Certain physiological facts make gastric resection and posterior gastroenterostomy a desirable operation for peptic ulcer. According to comparatively recent physiological research, tissues on the lesser curvature of the stomach initiate gastric peristalsis in much the same manner as cardiac contractions are initiated by the sino-auricular node of the heart. Ulceration of the lesser curvature is manifested early by disturbed peristalsis and indigestion.

An ulcer involving the greater curvature or cardiac portion of the stomach gives clinical rather than physiological symptoms, such as hemoptysis, perforation or obstruction.

Much more active peristalsis occurs in the pyloric end than in the cardiac end. Tonic contractions of the latter force food into the pyloric end, where the food is actively agitated. It seems apparent that ulcers located in the pyloric end of the stomach, especially on the lesser curvature, would present the most complex problem of healing. Much of the pain of ulcers of the pylorus is attributed to violent pyloric spasm.

Techniques of gastric resection and posterior gastroenterostomy are so readily available in surgical texts that a detailed description in this paper would be superfluous.

In my own cases I employ a short loop to insure sufficient mobility of jejunum without leaving sufficient excess which would tend to kink and cause obstruction. I favor resection of the motor end of the stomach to lessen pylorospasm and place the stoma low in the stump of the stomach. A sufficiently large opening is made to give ready emptying. This opening is made with the thermal cautery for two reasons:

(1) There is less tendency to hemorrhage when the intestinal clamps are removed, due to the coagulating effect of the cautery.

(2) Heat is a reliable germicidal agent.

Intestinal suture—No. O Chromic—is used entirely in the anastomosis. Nonabsorbable silk suture has been shown to be the responsible factor for the production of nonhealing ulcers at the site of the anastomosis. The chromic suture is also used to close the stomach and duodenum following resection.

A Payr type clamp is used for resecting the pyloric end of the stomach.

Great care is taken to guard against strangulation of the anastomosis by the mesocolon, which is sutured by interrupted stitches at the site of the anastomosis.

Prior to resection, a careful study of the stomach is made in a search for the ulcerated area. A characteristic speckling of the serosa over an ulcerated area is diagnostic, as is induration at the ulcer with, in some cases, a definite palpable crater.

Resection must be done well into healthy tissue.

I do not favor leaving an extensive gastric pouch distal to the new stoma. Within the past year I have had occasion to study by x-ray and to operate upon cases in which a long pouch was permitted. One case was of particular interest.

Following is a short history:

Male, a mining engineer, aged 46 years, height 5 feet, 8 inches, weight 112 pounds, married (two children), complained of frequent vomiting and constant pain in the epigastrium, which had no relationship to meals. He had been taking large quantities of sodium bicarbonate for relief.

The family history was essentially negative. Personal history revealed peptic ulcer with dietary regime and medication. Eight years ago he was operated upon for perforated ulcer. Six years later a pylorectomy, posterior gastroenterostomy and cholecystectomy were performed. Shortly after dismissal from the hospital his ulcer symptoms returned.

The patient was extremely emaciated. Blood examination showed hemoglobin 55 per cent and a red cell count of 3,000,000.

Barium x-ray studies revealed an "hour glass" type of stomach with the stoma of a posterior gastroenterostomy in the portion above the constriction. The pyloric end of the stomach was nonmotile and retained barium for over 24 hours. The appendix was visualized; it was retrocecal in position and retained barium for over 96 hours.

Over a period of two weeks this patient was given three transfusions of citrated blood, 500 cc. each. His chlorides were built up by intravenous salines to which glucose was added in concentration of 10 per cent. He was given a nutritious liquid and semi-soft diet and aluminum hydroxide prescribed. Under this regime, he gained strength sufficient to warrant exploratory laparotomy.

Upon opening the abdomen, we found the pyloric end of the stomach in the hepatic groove from which the gallbladder had been removed. Heavy bands of omental adhesions encircled the pyloric end of the stomach, one particularly dense band giving rise to the "hour-glass" effect.

The pyloric end of the stomach was resected to within one inch of the gastroenterostomy stoma, which was found adequate in size. Careful peritonization of all raw surfaces was accomplished.

The appendix was removed through a second incision (written permission for the second incision having been obtained from the patient).

Following surgery, in addition to the usual routine, the patient received three more blood transfusions of 500 cc. each.

Examination of the removed tissue did not reveal the presence of malignancy, but there was a well-defined, indurated ulcer in the extreme pyloric end.

The convalescence of this patient was uneventful. At the expiration of two months, he had resumed his occupation, weighed in the vicinity of 140 pounds and was handling ordinary foods with no distress.

I cite this case as one which was improperly handled in the light of our present knowledge. Had this patient had an appendectomy and a partial gastric resection instead of the pyloric resection in addition to the posterior gastroenterostomy, he would, in my opinion, have been saved much pain as well as expense.

To expect complete relief from symptoms in all cases of peptic ulcer, whether by posterior gastroenterostomy alone or in combination with partial gastric resection, is asking much. Sources of failure are multiple. Briefly they may be listed as follows:

(A) Mechanical—
- (1) Improper selection of site.
- (2) Too small a stoma.
- (3) Kinking of a loop of jejunum.
- (4) Constriction by the mesocolon.
- (5) Postoperative adhesions.
- (6) Interference with healing due to nonabsorbable suture.
- (7) Improper suturing—permitting leakage or tissue strangulation.

(B) Chemical—
- (1) Marginal ulceration at the anastomotic site. (An opening made too far from the duodenum has lessened resistance to gastric acidity.)

(C) Infections—
- (1) Failure to eradicate foci of infection about the teeth, tonsils, sinuses or appendix.

(D) Neurogenic—
- (1) Failure to recognize the ischemic effect of reflex vagal or splanchnic irritation, with resultant lowered resistance of gastric or duodenal mucous membrane.

We might also mention the fact that in the literature there are sixteen authentic cases of gastroileostomy, surgical accidents seemingly inexcusable.

Gastroenterostomy offered the victim of gastric distress new hope for a more comfortable existence fifty years ago. Only thirty years have elapsed since greater refinements of technique were offered; the past five years have perhaps afforded more relief by reason of the removal of the offending portion of the stomach.

6th Street at Vermont.

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Gall-bladder Disease, Its Diagnosis and Treatment

ANDREW R. M. GORDON, D.O.

Junior Surgeon, Los Angeles County Osteopathic Hospital

Los Angeles

Thirty years ago the diagnosis and treatment of appendicitis held first place in medical discussions, for at that time it was recognized as the principal source of abdominal pain. Today, with our modern methods of diagnosis, its pre-eminent position in interest is threatened by that of the gall-bladder.

The frequency of biliary tract disease, and confusion of its symptoms with those of other upper abdominal diseases, principally gastric, duodenal, and in many instances renal lesions, require that emphasis be given to the importance of accuracy in diagnosis.

Because of the close proximity of a large number of other organs to the gall-bladder, there are many conditions producing symptoms which may be confused with gall-bladder disorder, such as pain, tenderness, "splinting," nausea and vomiting, leukocytosis and increase of temperature; but it is to be noted that while much the same symptoms occur, they usually appear in different order in the various diseases. Some are more prominent in one disease than in others. A clear concept of the development of the condition depends upon careful and detailed history taking and close observation of the progress of the disease.

A detailed outline of the histological structure of the gall-bladder and its applied anatomy is unnecessary here. It can be described briefly as a distensible pouch located in the upper right quadrant, with its fundus lying in contact with the abdominal wall at the tip of the ninth costal cartilage, in the midclavicular line and just at the outer edge of the right rectus muscle. Normally it contains from 35 to 50 cc. of concentrated bile. Within the neck of the gall-bladder and in the cystic duct are constrictions of mucous membrane which obstruct the passage of stones or a probe. These are sometimes referred to as the valves of Robson and of Moynihan.

The cystic duct is usually about 3 or 4 cm. long and empties into the common duct as it emerges from the portal fissure, which in turn empties into the duodenum at the ampulla of Vater.

From a surgical point of view, the important anatomical fact is the close relationship of the liver, pylorus, duodenum, pancreas, right kidney, colon and diaphragm. This close relationship is responsible for much confusion in making a diagnosis. When inflammation exists, the symptoms and signs may seem to indicate that the lesion lies in any one of these closely related structures.

In the presence of edema and inflammatory adhesions, contiguity of the terminal portion of the gall-bladder and common duct may become practically a continuity, predisposing the common duct to injury during excision of the gall-bladder.

The appreciation of the structural relationship in the formation of the triangle of Calot, namely the cystic duct below, hepatic duct to the median side, and the cystic vessels above, is of vital importance during cholecystectomy if injury to the common duct is to be avoided.

We mention briefly that histologically the elaborate folds of mucosa give the appearance of villi made up of a single layer of columnar epithelium. The relationship of the abundant blood and lymph vessels to these villi is important in the consideration of the inflammatory processes of this organ.

The main vessels and lymphatics are found in the subserous layer, and it is here that most of the thickening takes place during the course of inflammation.

Luschka's cystic glands, which are found in the terminal portion of the gall-bladder and cystic duct and extend into the muscularis, seem to secrete mucus when inflammation exists, and have been credited by some with the formation of gallstones.

There has been much controversy as to the function of the gall-bladder, with many claiming that its purpose is merely one of storage. Others believe that it has a special activity of its own which contributes to the process of digestion. The principal argument against the storage theory is the elaborate and intricate plication of mucosa with its abundant blood and lymph supply, which indicates a tendency toward absorptive function.

Many theories exist as to the source of invasion of the gall-bladder by irritants to produce inflammatory conditions. C. H. Mayo, Rehfuss, Nelson and others contend that it is frequently the result of hematogenous bacterial infection of the wall of the viscus. It is also believed by some that it is more

often the result of invasion of the gall-bladder through the lymphatic channels from the liver.

Whether acute cholecystitis be suppurative or gangrenous, the presence of stones or an obstruction of the cystic duct is not an indispensible factor in production of this common type of pathology.

Regardless of the two theories previously mentioned, any obstruction of the cystic artery or its branches may produce a gangrenous lesion; or bacteria may invade the gall-bladder wall by way of the cystic artery or hepatic lymphatics and produce a suppurative noncalculous cholecystitis.

Graham states that many experiments have been made in an attempt to produce a cholecystitis of biliary origin, but the results seem to confirm the theory that trauma and stasis are strong factors in the majority of cases.

The opinion of Wolfson and Rothberg of Cook County Hospital in Chicago is that acute noncalculous cholecystitis is a disease of distinct etiology, produced by hematogenous infection rather than by obstruction of the cystic duct, the syndrome resembling an infection of hematogenic origin, there being no predilection for either sex or particular age group, and the primary source of gall-bladder infection being traceable to some focal infection in about one-third of the cases.

It would seem that the etiology and pathogenesis of this type of gall-bladder disease differs from acute calculous cholecystitis with obstruction of the cystic duct in the following ways: In noncalculous cholecystitis there is a history of infrequent previous attacks and a lower incidence of the usual prodromes, i.e., pyrosis, indigestion and the aversion of fats, while the range of temperature is higher, chills are more frequent and there is greater incidence of perforation and morbidity, which would indicate that early surgery is more urgent than in acute cholecystitis.

Contrary to the opinion expressed by Wolfson and Rothberg about the importance of age and sex in occurrence, J. M. Black, M.D., in the *British Medical Journal* of January, 1935, says that out of one hundred patients with gall-bladder pathology, eighty-four were women, fifty-three of whom had borne children, and whose average age was forty-nine years. There were sixteen male patients whose average age was fifty-two years.

During the course of surgery, white bile is frequently found in the gall-bladder. It is believed that this is always a result of complete obstruction of the cystic duct plus infection. Back pressure in the biliary tract stops secretions, and the bile remaining in the tract is discolored by the leukocytes which are present. The infection acts as an irritant on the epithelium of the biliary passages and causes a hypersecretion of mucus. The whiteness of the bile varies directly as the number of leukocytes.

The fact has long been recognized that a gall-bladder once infected remains so, excepting in acute catarrhal cholecystitis. Symptomatology depends on several factors, namely whether it is an acute or chronic inflammation, whether obstruction is present or absent in the cystic duct, whether gallstones are present without infection, or if infection is present, its degree.

An acute infection is one in which the processes are active, and is usually characterized by the cardinal symptoms of inflammation, which are heat, redness, swelling and pain. In acute catarrhal inflammation the submucosa has not been invaded, and only the mucous surface is involved so that a desquamation of its epithelium is produced. When an inflammation reaches the chronic stage, there is a proliferation of new connective tissue in the structure involved.

The following syndrome is most prominent in cases of gall-bladder and gallstone disease: irregular attacks of acute agonizing pain, colicky or tearing in character beginning in the right hypochondrium or epigastrium, radiating to the right shoulder; spasms of the cystic duct, caused by presence of a stone, which in turn produces the sudden onset of pain, and when the stone passes into the common duct or drops back into the gall-bladder, there is relaxation of the spasm with cessation of pain; rigor, chills and profuse sweating; small and feeble pulse; usually an enlargement of the spleen; a temperature of 102 or 103 F.

Between attacks of gall-bladder colic there is a group of symptoms usually referred to the gastric and hepatic regions; the patient complains of indigestion, gastritis or dyspepsia because of abdominal distention, belching, or a sense of weight in the epigastrium following ingestion of food. Sufferers practically always give a history of taking sodium bicarbonate or some other such agent to bring relief.

These digestive disturbances between acute attacks have been attributed to a reflex spasm of the pylorus. Such spasms have been observed under the fluoroscope and, as no evidence of other pathology was present in the stomach or duodenum, such as ulcer, roentgenologists have interpreted this reflex spasm as evidence of gall-bladder disease.

The aforementioned digestive disturbances between acute attacks usually manifest themselves whether stones are present or not, but the symptoms as a rule are well defined in cases of chronic cholecystitis without stones.

The most marked physical sign is tenderness, more often complained of as soreness. It is present over the liver and gall-bladder region during the quiescent stage, and is more marked after an attack, especially when a local peritonitis has developed with the inflammation having involved the peritoneal coat of the viscus. This muscular rigidity and tenderness correspond to the extent and degree of the peritonitis.

Nausea and vomiting are variable in degree, vomiting being more severe in the presence of gallstones or local peritonitis. Vomiting may relieve the pain, which at times is intense and will not yield to morphine administration.

If, on physical examination, the enlarged viscus can be palpated in the form of a pear-shaped mass, it can be definitely stated that the condition has arisen because of a closure of the cystic duct which allows the gall-bladder to become distended with a purulent exudate added to the bile and mucus.

Hydrops of the gall-bladder from a stone impacted in the cystic duct may also produce a palpable tumor mass without an acute inflammation being present. In such a case tenderness is less marked and "splinting" is absent. If the inflammation of the gall-bladder is of long standing, whether or not cal-

culi are present, the viscus becomes so contracted that even after an acute exacerbation it is not palpable. Deep tenderness is elicited when, at the end of a full inspiration, the fingers are thrust upward beneath the costal arch at the outer limit of the right epigastrium. This is known as Naunyn's sign. Murphy's sign, which is also indicative of gall-bladder disease, consists of the inability of the patient to take a deep inspiration when the physician's fingers are hooked up beneath the right costal arch below the hepatic margin.

It is estimated that in over one-third of the cases of gall-bladder disease Libmann's sign is present. This consists of tenderness opposite the seventh cervical vertebra, at the margin of the right trapezius near the angle of the scapula, due to the entrance of afferent stimuli over sympathetic fibers from the biliary tract into the third, fourth and fifth cervical segments and the phrenic nerve. Irritation of structures supplied by the phrenic nerve produces pain in sensory regions supplied by the third, fourth and fifth segments. This is especially so in the fourth, from which the phrenic nerve is chiefly derived. Symptoms of pain referred to the interscapular and lower thoracic regions may be due to irritation of afferent fibers from abdominal viscera entering the lower six thoracic segments. The white rami communicantes of the lower six thoracic spinal nerves unite with branches of the lower sympathetic nerves in the thorax. They pass through the great splanchnic plexus and unite with the solar plexus. There are a number of cases on record where patients have complained of tenderness in the region of the seventh cervical vertebra and scapula, who after receiving manipulative treatment for vertebral or rib lesions, failed to get relief, but following cholecystectomy this source of discomfort was immediately relieved. The reason for failure of manipulative therapy in these cases can be readily understood after due consideration of the sympathetic nerve involvement and reflexes.

The laboratory findings in gall-bladder disease vary according to the degree of pathology present. The leukocyte count will usually show an increase of from 14,000 to 20,000 with a polynuclear ratio of from 80 to 90 per cent in an acute cholecystitis, especially where there is a peritoneal involvement. Leukocytosis is generally absent in the chronic inflammatory lesions.

The presence of disease does not manifest itself by signs or symptoms unless there is some form of obstruction to the flow of bile through the conducting system. The degree of jaundice, when present, is determined by the degree of obstruction. If infection is associated with the obstruction, the symptoms of absorption, chills, high temperature, and malaise are added to the jaundice. Again the degree of the obstruction and the virulence of the bacteria determine the extent and rapidity of the development of the inflammatory process, the absorption phenomena and the profundity of sepsis. Obstruction may be periodically complete as a result of the so-called ball-valve stone obstruction at the ampulla of Vater, with signs and symptoms correspondingly intermittent. It is this condition which gives the rather rare syndrome of Charcot, which consists of a severe shaking chill, a sharp steeple-like rise of temperature to between 103 and 106, extreme malaise and temporary jaundice followed by abrupt subsidance of all symptoms.

If partial obstruction is persistent, in addition to infection, a chronic cholangitis results with persistent septic symptoms of a lesser degree.

Continued complete obstruction with infection produces persistent jaundice and sepsis. These cases are or are not terminal depending on the virulence of the infection and the resistance of the individual.

The subjective phenomena of persistent jaundice are: anorexia, malaise, bitter metallic taste, and loss of weight and strength. The presence of severe pruritus is due to bile pigments in the skin; the itching becomes intensified at night, with increase in temperature in the room or from clothing.

The objective phenomena are a deep greenish bronze of the skin, sclera and mucous membranes. The urine is a deep mahogany color, showing a yellow foam on shaking, and stains clothing a bright yellow. The nitric acid reaction is strong for bile. Feces are clay- or ash-colored and have an offensive odor. In complete obstruction, tests of stools for bile are negative. If the obstruction is of long standing, the blood serum shows a high bile index. Clotting time is prolonged; it may be lengthened one to two hours, and at times clotting does not occur at all. It is this factor that makes surgery hazardous in such conditions. If it is certain that the lesion will be found in either the stomach, the duodenum or the gall-bladder, it is advisable to have a series of x-rays made. For best results, the patient is given an intravenous injection of gall-bladder dye such as the sodium salts of tetraiodophthalein, of which about four grams are administered. This solution will leave the blood stream in from two to four hours, although a trace may be found later because of reabsorption. This dye is given after a fat-free meal. Three sets of exposures are made, and a fatty meal is given before the final picture. Cream is frequently given as a substitute fat meal. Lecithin, also, may be given; it is the most active ingredient of egg yolk, stimulates gall-bladder contractions, does not retard gastric peristalsis, and leaves the stomach rapidly.

The liver starts to excrete the dye in about half an hour, reaching its maximum concentration of bile in five hours if the gall-bladder is not present, and within seven hours if the gall-bladder is in situ. The liver excretes 60 to 70 per cent of the dye, urine 5 to 10 per cent, and the large intestines about 25 per cent. Fat causes a greater amount of dye to be rendered insoluble in the small intestines. It also causes a greater secretion of dye by the liver and probably greater gall-bladder absorption. Pancreatic juice renders part of the dye-containing bile more insoluble.

If the gall-bladder shadow is absent or faint, and the shadow of the large intestines dense, it is an indication that absorption of the dye by the gall-bladder is not normal or else there is obstruction of the common or cystic duct, dilatation of the hepatic ducts or incompetence of the sphincter of Oddi.

Kellen, in *Northwest Medicine*, June, 1922, points out a number of findings by x-ray which constitute evidence of disease of the gall-bladder irrespective of doubtful shadows of the gall-bladder itself. These consist of pressure defects or ad-

hesion deformities of the superior margin of the duodenal bulb; permanent displacement of the duodenal bulb, usually to the right or downward; adhesion defects of the second and third parts of the duodenum; acute angulations or left-sided displacement causing delay in emptying which is best seen under the fluoroscope; defects of the lesser curvature of the stomach near the pylorus, not punched out as in ulcer; chronic contractions or a folding back of the pyloric antrum; deformities of the gastric fundus because of adhesions in the form of bands; also various other conditions of similar appearance affecting the jejunum and colon in the vicinity of the gall-bladder. Winslow says that if x-ray pictures are not demonstrative of a lesion they should be repeated. If there is a deformity in the duodenal cap which disappears with the use of atropine, it is usually caused by reflex irritation from abdominal lesions outside of the duodenum.

Nonsurgical drainage of the gall-bladder is of marked value in the differential diagnosis of gallstones, especially when used in conjunction with the clinical history and physical findings.

The equipment required for doing a nonsurgical drainage consists of a Rehfuss tube, a 50 cc. Luer, or other syringe, a sufficient number of paper cups, an emesis basin, rubber sheet and towels, 50 or 60 cc. of sterile olive oil, and 50 to 100 cc. of magnesium sulphate or Fleet's Phospho Soda.

The technique of a nonsurgical drainage of the gall-bladder is as follows: the patient is allowed no breakfast; antiseptic oral solution is applied; with the patient sitting, the tube is passed to the first mark, the cardiac orifice; the patient is then allowed to rest; the tube is then passed to the second mark, the pylorus, with the patient sitting or standing; the patient then walks about for five minutes; the patient is now placed on the right side and allowed to swallow slowly to the third mark, the ampulla of Vater; 20 to 30 cc. of air is blown down the tube, and the position of the tip of the tube is located by auscultation over the stomach area; the duodenal contents are drained or siphoned off; 50 cc. saline solution is allowed to gravitate through the tube; if there is no flow of bile, another 50 cc. of saline solution is injected; the right costal region is stimulated, with deep pressure applied to the seventh vertebral segment; 50 cc. of warm olive oil is injected and siphoned off; "A"-"B"-"C" fraction bile is collected in separate containers; a specimen is sent to the laboratory for culture, or for other differential diagnosis; after drainage the tube is removed slowly, and the mouth is rinsed with an antiseptic mouth wash; crackers and soup are given for lunch; a nonfat diet is prescribed.

The results obtained will depend on the tonicity of the gall-bladder wall and upon whether its cystic duct is patulous; it also depends upon the length of time in which the impulse to gall-bladder contraction and sphincter relaxation continues to be maintained. The first bile obtained may be somewhat diluted by the saline solution, but its color gradually deepens until it becomes a light golden yellow color and of medium viscidity. In the absence of disease the bile is perfectly transparent. This may also apply where there is a low-grade infective cholecystitis and in certain types of biliary stasis where no recognizable catarrhal inflammation has been produced. A spurt of gastric juice entering the duodenum may mix with this first bile and change its consistency and appearance to an emulsive turbidity varying in its density in proportion to the degree of gastric acidity and to various alterations in the chemical constituents of the bile. For example, mucin, lecithin, neutral fats, etc., may be shown microscopically. The amount of "A" bile recovered varies from 10 to 30 cc. After it comes the "B" bile, which is more viscid and of a darker golden yellow color. In healthy states this is usually quite transparent. This may drain intermittently or steadily, varying in quantity from 10 to 75 cc. in normal cases and from 10 to 300 cc. or more in pathological cases. In the more severe type of biliary stasis and cholecystitis this bile may become almost black, very thick and tarry, and showing microscopically a greater amount of desquamated tall columnar epithelial cells deeply bile stained, many pus cells, mucopurulent flakes, many bacteria and much inflammatory debris. It is in this bile that the various bile crystals which may give the bile a gritty or sandy feel are obtained, and it is of great importance in determining the presence of potential and existing cholelithiasis.

Cholesterol crystals or the so-called bilirubin calcium or both are almost conclusively pathognomonic of gallstones. Cholesterol crystals alone are 89 per cent and bilirubin calcium pigment alone is 90 per cent diagnostic of gallstones.

In a series of 148 cases, 29.2 per cent of the stones were definitely shown by x-ray, 83.2 per cent positive diagnoses were made from biliary drainage findings, 88.4 per cent showed evidence of pathology by x-ray with the shadow being faint or absent, and 98 per cent showed positive by drainage.

Cholecystography by the intravenous method is superior to the oral method or biliary drainage as a gauge of the gall-gladder function, if only one method is to be used, but biliary drainage is superior to x-ray for gallstones, many of which do not cast a shadow on the film.

When exploration of the common duct is contraindicated during surgery, drainage becomes necessary to reduce back pressure, with its ultimate damage to the liver, and the obstruction is left to be dealt with when the acute symptoms have subsided. The injection of Hippuran, a 48 per cent aqueous solution of organic iodine, has come into great favor as a nonirritating agent to be used in cholangiography. This radiopaque substance, which is injected directly into the bile ducts, has proved to be a valuable therapeutic procedure as well as a means of visualizing the presence of calculi, strictures, dilatations or fistula, which so frequently develop in chronic gall-bladder or extrahepatic conditions following pressure of stones but which may never be suspected until such time as surgery may be performed for some other condition.

Immediate cholangiography is of particular value where stones can not be palpated in the common duct or when the selection of a proper technique is difficult, whereas delayed cholangio-

graphy is invaluable in every case where a T-tube or catheter is placed in the common duct or where a fistula is present. By this means one can definately determine the presence of stones or other obstructive debris in the common duct which is so frequently overlooked by the surgeon who has thoroughly probed, or explored by palpation, at the time of operation.

Radiopaque solutions must be absolutely sterile, warmed to a temperature of 120 degrees, and strict sterile technique observed during the injection. If the solution used is too viscid, difficulty may be encountered when injecting, or the extradural tissues may become infiltrated giving a hazy, indefinite cholangiogram.

In all cases where dye is given preoperatively, it is advisable to follow with a barium meal. By this method the suggestions made by Kellen are more readily understood, for in many cases presenting a clinical picture suggestive of gall-bladder pathology, an ulcer will be found. In such cases it is advisable to continue with expectant treatment, and if the case fails to respond, it may be considered as an indication for surgery. Other indications for surgery in biliary pathology are pressure of stones indicated by recurring attacks of colic, persistent dyspepsia in spite of proper care which includes the avoidance of fats, acute obstructive cholecystitis, a stone in the common duct, and symptoms pointing to the bile passages, accompanied by secondary toxic symptoms such as arthritis, rheumatism and heart conditions.

There are cases in which the gall-bladder concentrates dye more readily than does the normal viscus and yet gives rise to the characteristic gall-bladder symptom syndrome. Even though there are no stones present, it cannot be considered as free of disease. It is in such cases that the Graham-Cole test and cholecystography is not always to be relied upon. Where x-rays and duodenal drainage appear to be negative, if symptoms persist and a clear history has been obtained, the best interests of the patient will be served if the offending organ is removed.

The question whether to use nonoperative or surgical treatment for acute cholecystitis is one that is frequently encountered. The regimen generally recommended in the former procedure is the placing of the patient in the semi-Fowler position and passage of the Levine tube, with gastric lavage if the vomiting is excessive. Only small quantities of hot liquid should be given by mouth, and if these are not tolerated, nothing should be given. Glucose and normal saline solution are injected intravenously. Enemas are given and morphine sulphate is used to relieve pain. In many instances ice applied locally will be more effective than a narcotic.

Many well-known surgeons maintain that no surgery should be performed until the patient has been symptom-free for one week, and then the operation of choice is cholecystectomy. Pratt, from the Wayne Babcock Clinic, has operated for acute suppurative and gangrenous cholecystitis and reports that during a period of thirteen months no deaths occurred when such operations were performed within 48 hours of the onset of symptoms. Early surgery gives a mortality rate of about 4 per cent, while delayed surgery increases it to more than 15 per cent because of involvement of the liver, pancreas and peritoneum.

Jopson recommends a subtotal cholecystectomy, particularly in acute cases, with amputation as far down as possible and the suturing of a tube into the stump. This method decreases the amount of tissue manipulation and the possibility of shock that comes with complete removal, and is much more satisfactory than simple drainage.

Having decided that a cholecystectomy is indicated, it remains for the surgeon to decide what particular method or form of technique he is to employ. This will depend to a great degree on the type of case, age and general condition of the patient. Regardless of the methods or recommendations of others, one must learn to develop surgical judgment, which, of course, requires time and opportunity and is greatly enhanced by association with others who have had such experience and opportunity. It is generally conceded that the best and safest method of removing the gall-bladder is from the cystic duct towards the fundus, but there are cases where this is practically impossible. In such patients the viscus may be removed by the retrograde method, care being exercised not to allow too much traction on the fundus. It is here that the danger of injuring blood vessels is most pronounced and irreparable damage to the liver may result.

Preoperative care is of vital importance and should not be too long extended in time if a definite diagnosis of cholecystitis or cholelithiasis has been made.

In chronic cases these patients, who are usually short and obese, should be placed on a reducing diet for a time, thus making surgery safer and easier. The multiplicity of lesions likely to be encountered in this region makes it a field in which the inexperienced surgeon is likly to run into trouble, in finding that after surgery has been performed, symptoms may persist. The abdominal triad is the common pitfall, for here we have a gall-bladder lesion, duodenal ulcer, and chronic appendicitis, each condition having to be cared for.

Dehydration should be overcome as far as possible. Where there has been much vomiting or diarrhea, the water balance is greatly reduced, internal circulation is depleted, and there is great waste of chlorides (in vomiting), and alkalies (in diarrhea). The blood becomes concentrated, and there is increased viscosity with capillary stasis and anoxemia. Acids accumulate in the system, which condition should be overcome as far as possible before operation, as surgery tends to produce further dehydration.

Urine may be scanty or concentrated because of dehydration. Urea formation is increased because of abnormal consumption of protein as a result of decrease in carbohydrates, a high blood-urea develops, and kidneys fail to function normally because of toxemia. Glucose is given to increase the glycogen available in the liver and thus overcome many of these conditions. In emergency an intravenous injection of 25 to 50 cc. of a 25 or 50 per cent glucose solution may be given, followed by 1,000 cc. of normal saline solution, to overcome the loss of water which might occur

because of the diuretic action of glucose. It is not advisable to be in too great a hurry with strong glucose solutions if the patient is dehydrated to any marked degree. Normal saline in the amount of 2,000 cc. may be given daily. The normal intake of sodium chloride is 10 to 20 grams a day.

The icteric index denotes the degree of jaundice, but not the coagulability of the blood. Jaundice may be present without disposition to hemorrhage.

It has been said that if the bilirubin curve is mounting, the tendency to hemorrhage is increased. If it is decreasing or stationary, the tendency to hemorrhage disappears. Glucose increases the coagulability of the blood. Intravenous injections of 5 cc. of a 10 per cent calcium chloride solution for three days prior to surgery tends to reduce clotting time, but transfusion is the most reliable method.

The high mortality following gall-bladder surgery has been attributed to such complications as cardiac and renal failure, peritonitis, perforation, thrombosis and faulty technique. While all these factors have their places and should not be overlooked, it is certain that failure to utilize every means at our command in making an early and accurate diagnosis, as well as lack of an intimate knowledge of the common and special anatomy of the bile passageway, and negligence in preoperative preparation, are responsible for so many failures in this type of surgery.

649 S. Olive St.

The Necessity of Cooperation Between General Surgeons and Urological Specialists

LUCIUS B. FAIRES, D.O.

Senior Surgeon, Urological Department

Los Angeles County Osteopathic Hospital

Los Angeles

The ever-increasing frequency of articles in the current literature relating to the differential diagnosis between urological conditions and those ordinarily considered as general surgical disorders, speaks for itself and emphasizes the importance of the subject.

When consideration is given to the gross anatomy of the urinary system and particularly the nervous anatomy, it is much easier to understand the close relationship and overlapping symptoms arising from intra- and extraperitoneal pathological conditions. The kidneys lie on either side of the spinal column, the ureters traveling downward to the bladder and lying immediately posterior to the postparietal layer of the peritoneum. They cross over the iliac vessels and under the Fallopian tubes, to enter the bladder through the posterior wall on either side. This close association with the peritoneum readily accounts for the signs and symptoms of peritonitis in any perinephritic or periureteral inflammation. However, the associated symptoms due to extension of inflammation by contiguity of tissue is not the only confusing point to be considered.

The nerve supply to the kidney is chiefly from the renal and the inferior mesenteric plexuses, while from the pelvis the sacral and hypogastric plexuses send branches to the bladder, seminal vesicles and lower part of the ureter, one branch reaching as high as the kidney. To those who are osteopathically trained, this is a very significant point, but at the same time close analysis will readily reveal the likelihood of overlapping stimuli, which may be confused with the stimuli from other organs supplied by the same nerve segments.

The oft-repeated statement that "over 50 per cent of patients suffering from renal pathology seek the advice of their physician complaining of gastrointestinal ailments," should be sufficient reason to make every diagnostician urologically conscious.

To emphasize the importance of careful differential diagnosis between urological and intraperitoneal pathologies, let us start with the kidney areas and enumerate those ailments most likely to be confused. On the right side we must remember the possibility of cholecystitis, cholelithiasis, gastric and duodenal ulcer, and hepatitis. On the left side we must think of conditions of the spleen and descending colon; and on both sides gastritis, obstructions of the intestines, and neoplasms.

Infections of the skeletal muscular structure making up the renal fossae, tuberculosis of the spine and myositis of the psoas, may require differentiation from urological pathology.

In the lower quadrants, the right has by far overshadowed the left in the importance of diagnosis. Ureteral pathology may be confused with appendicitis, acute or chronic, tubal or ovarian pathology, diverticulitis, intestinal obstruction or hernia.

The time has long since passed when a negative urinalysis was sufficient to dismiss the possibility of urological pathology. On the other hand, finding of foreign elements in the urine may be only the indication of secondary renal overload from some primary involvement elsewhere in the body. By the same token, the mere presence of a lower right quadrant pain recurrent in nature, has ceased to be sufficient excuse for the removal of an appendix.

In discussing ureteral stone, I quote Joly[1] as follows:

> Where a stone is impacted in the ureter, most of the mistakes in diagnosis are the result of incomplete examination. This applies especially to x-ray examinations and cystoscopic procedures. Most errors have arisen when dealing with right-sided symptoms. Repeated attacks of pain in the right iliac fossa accompanied by vomiting, constipation and fever, with localized tenderness in the region of McBurney's point during the quiescent intervals, naturally

suggest a relapsing appendicitis. In these cases, Rovsing's sign is of great assistance. Massage of the descending colon in an upward direction tends to increase tension in the cecum and the amount of pain in the right side in cases of appendicitis, but has no effect if the patient is suffering from stone. The absence of this sign, together with the finding of blood in the urine, should lead the surgeon to have an x-ray examination made. At the same time, it must be remembered that blood may be present in the urine of patients suffering from appendicitis. A careful and complete examination of both urinary and intestinal tracts usually results in the correct diagnosis being made. „

This reference to a ureteral stone can be applied readily to any ureteral obstruction, whether it be from stricture, kink, new growths or pressure from without from a foreign body.

In reviewing recent literature regarding the signs and symptoms of various conditions occurring in the abdomen or (especially in the female) pelvis, it has been interesting to note the frequency of the following words: "usually," "frequently," "often," "perhaps," "may," "sometimes," and "occasionally," showing that a sure fire diagnosis is not always easy, and too few symptoms and signs are standard.

Many cases of "acute surgical condition of the abdomen" are admitted to the hospital presenting enough of the classical signs and symptoms to assure an accurate diagnosis at once without urological consultation. On the other hand, our surgical staff for many years has asked for urological consultation in the vague and obscure case without a classical picture, especially when the patient was suspected of having chronic appendicitis.

Some may ask, "How, then, are we to make an accurate diagnosis?" We give briefly a resumé of our routine procedure in helping to arrive at a decision where a urological problem is suspected.

First, one may be assured that a cystoscopic examination is contraindicated in but few types of cases and these are usually so severe that a diagnosis is evident without it.

In doing our routine cystoscopic examination we first pass the scope into the bladder noting the character of the urethra and the contents of the bladder whether clear or filled with detritus. Next we make a careful survey of the bladder mucosa, the trigone and the ureteral orifices, and note the presence or absence of calculi or neoplasms and the degree of any inflammation.

A great deal may be learned by watching the ureteral orifices, noting whether they are open or closed, the nature of the flow, the frequency and character of urine expelled from them.

The next step is the passage of an ureteral catheter to the side suspected of being the site of pathology. Using the largest catheter that can be passed without trauma up to a size 7, we make a careful note of any resistance to the passage, the nature and rapidity of the drip as the catheter progresses up the ureter and whether the flow is constant or intermittent.

If frank pyuria is encountered in the kidney or an obstruction passed, thereby draining an extensive hydronephrosis, no further study is made at this time except to collect specimens for the laboratory; the patient is returned to bed with the ureteral catheter in situ. After repeated lavage of the kidney pelvis, the patient's symptoms will usually abate in a few hours.

If, on the other hand, no marked deviation from the normal is found, the other ureter may be catheterized and specimens obtained from both kidneys simultaneously for routine microscopic study and culture.

We now give 1 cc. of phenol-sulphonphthalein intravenously and note the appearance time of the dye on each side (normal appearance time from 3 to 6 minutes).

In a series of urological pictures, the first is taken with the catheters in situ with no injection of contrast media. The second is taken with the patient supine or in slight Trendelenburg position after slowly injecting iopax, neo-iopax, diodrast, skiodan or whatever medium is being used. The third picture is taken with the pelvis and ureters filled, the catheters withdrawn to the lower portion of the ureters and the patient as near upright as possible. Occasionally a fourth picture taken obliquely will give further help in locating a questionable mass.

The x-ray pictures may be examined in a few minutes and the microscopic study returned at once, so that little time has been lost if the patient is found not to be suffering from a urological complaint and the necessary abdominal surgery delayed but little in emergency cases.

During the last few years intravenous pyelography has enjoyed a wide popularity. There is no question but that it can be used to great advantage, especially where retrograde pyelography is contraindicated as in the very aged, or very young, or where a trained urologist is not available. However, I do not feel that it can replace a complete urological survey by means of the cystoscope. Too often it fails to give the desired information and future study is necessary.

One word of warning to all surgeons: the possibility of coexisting pathological conditions. The general surgeon should remember that the patient suffering with acute appendicitis may have in addition pyelitis or a perinephritic abscess; and the urologist must remember that the patient with a nephroptosis or kinked ureter which may be of long standing, may develop an acute appendicitis, gall-bladder or intestinal obstruction which will aggravate his urological complaint so that the more serious disorder may be overlooked until it is too late.

Another suggestion offered to the general surgeon will bear repeating here. Quoting Hoffman[2]:

> The incidence of postoperative fistulae may be greatly reduced by the precautionary measure of mobilizing the bladder and ureters during pelvic operations demanding extensive dissections. Before operating for malignancy, intraligamentory tumors or pelvic inflammatory diseases associated with anatomical distortion, a catheter should be inserted into either ureter as a routine procedure. By so doing the likelihood of injurying the ureters will be reduced to a minimum. Postoperative indwelling ureteral catheters in similar cases will lessen the incidence of bladder fistulae.

In conclusion, it is my earnest conviction that the application of the things outlined in this paper and the cordial association which my coworkers and I have enjoyed with the members of the general surgical staff have helped not only to keep our mortality rate at the minimum but also to lessen the hospital days of our patients as well as producing better results.

6331 Hollywood Blvd.

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The Anemias*

O. EDWIN OWEN, B.S., M.A., D.O.

Department of Pathology, Des Moines Still College of Osteopathy

Des Moines, Iowa

It is the purpose of this paper to present a comparative study of the anemias. In the broad pathological sense, anemia represents a quantitative or a qualitative lack of blood in a part or all of the body. In this presentation we will not be concerned with the failure of the circulatory system to deliver an adequate amount of blood to a given organ, but will deal with those factors which alter its quality.

Classification.—There has been a tendency now outworn to classify the anemias into primary and secondary groups. The primary group included those anemias which developed independently of known causes, such as pernicious anemia, hemolytic jaundice and chlorosis. The secondary group included any anemia appearing as symptomatic result of some other known pathological conditions such as hemorrhage, iron deficiency, etc. Continual study and clinical application has gradually exposed the idiopathic nature of the primary anemias until the above classification is of little value. In anemia we are dealing primarily with a decrease in number of erythrocytes. However, their chemical composition may be decidedly altered, particularly in regard to hemoglobin. In order to form a distinct picture of the anemias, we must realize that the normal erythrocyte level depends upon a relative hemogenic-hemolytic balance. In other words, there is a balance between blood formation and blood destruction. This physiological approach provides a logical classification. First, those anemias due to blood loss or increased blood destruction; and second, those anemias due to defective blood formation.

I. ANEMIAS DUE TO BLOOD LOSS OR INCREASED BLOOD DESTRUCTION.
   1. Posthemorrhagic anemias
      A. Acute
      B. Chronic
   2. Hemolytic anemias
      A. Chemical hemolytic poisons
      B. Specific infections
      C. Increased fragility of erythrocytes
      D. Endogenous hemolysins

II. ANEMIAS DUE TO DEFECTIVE BLOOD FORMATION.
   1. Iron deficiency-hypochromic, microcytic
   2. Lack of specific antianemic factor-hyperchromic, macrocytic
   3. Aplastic anemia

I. ANEMIAS DUE TO BLOOD LOSS OR INCREASED BLOOD DESTRUCTION.

1. Posthemorrhagic Anemias. A. Acute: Acute posthemorrhagic anemia requires only incidental consideration. It follows a sudden loss of a large amount of blood. One-third of the total volume of blood may be lost quickly, followed by complete recovery. Two-thirds of the total volume may be lost over a period of a few days and recovery occur without transfusion. The resulting symptoms are associated chiefly with the reduced oxygen-carrying power of the blood stream. At first there will be no change in erythrocyte count, but as the hours pass, tissue fluids will pour into the blood stream and the cell count will be reduced by dilution. This will also lower the hemoglobin percentage. During the period of recovery, erythrocyte regeneration will be more rapid than the increase in hemoglobin, thus establishing a normocytic, hypochromic anemia. That is, one in which the cells will be of normal size but will be deficient in hemoglobin. The color index will be low. Weeks will be required for the return to normal unless the hemopoietic system is supported by treatment measures.

B. Chronic Posthemorrhagic Anemia.—Chronic posthemorrhagic anemia is not as dramatic and spectacular as the acute, since it often comes on insidiously following the constant or frequent loss of relatively small amounts of blood over a period. It is so commonly associated with menorrhagia, metrorrhagia, bleeding hemorrhoids, peptic ulcer, cancer of the bowel, and tumors of the urinary tract.

The condition finally resulting from such hemorrhage is due to iron deficiency and finally exhaustion of the bone-marrow. Other factors, such as malnutrition in peptic ulcer, or toxemia accompanying cancer of the bowel, may fit into the picture.

There will be no abrupt clinical change. The symptoms will depend upon the degree of anemia and the cause. Common symptoms are weakness, easy fatigability, pallor of mucous membranes, dizziness, headaches, dyspnea upon exertion and edema of the ankles. The blood pressure will probably be normal since the blood volume is unaffected. The color index and hemoglobin percentage will be low. The decrease in number of red blood cells will depend upon the amount of blood loss. The cells will be small and variable in size, with each deficient in hemoglobin. Immature cells will be present only in severe cases. There will be no change in the leucocytes unless the bone marrow becomes exhausted.

The diagnosis of any posthemorrhagic anemia will be self-evident following a thorough routine examination and the cause should not be overlooked in the treatment of the case. This is often done, particularly in the chronic posthemorrhagic types, because the primary condition often seems to be of greatest import.

2. Hemolytic Anemias.—The hemolytic anemias embrace those conditions in which there is excessive blood destruction, as the result of some hemolytic agent. Here we are brought face to face with the physiological basis of the anemias, namely, the hemogenic-hemolytic balance, with the erythrocytes being

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destroyed more rapidly than they can be manufactured by the hemopoietic tissues. Hemolytic agents usually exert some toxic effect upon the liver, with the possibility of jaundice resulting. In addition to this, the accompanying toxemia may depress the bone marrow, thus disturbing the hemogenic as well as the hemolytic side of the balance.

A. Chemical Hemolytic Poisons. — On first thought, one might be led to believe that a discussion of chemical hemolytic poisons should be relegated to the classical treatises in experimental physiology and pharmacology. This is not the case, for doctors and the public alike are being constantly and forcefully urged to adopt new medical discoveries and supposed cure-alls. There is a current hysteria to place new preparations in premature and inexperienced use. These "over-ballyhooed," so-called new discoveries are responsible for hundreds of deaths annually.

It is not unusual that formulae concocted to combat one condition bring on other ills regardless of their effect on the particular condition for which they were intended. For example, a drug may be prescribed to alleviate pain or combat bacterial infection and succeed in its purpose, yet act as a drastic hemolytic poison resulting in severe anemia and agranulocytosis with perhaps death. Every doctor knows that there are hundreds of such cases annually; only a few come to light in instances when the victims are prominent people. Manufacturers rushed to turn out a drug and doctors rushed to try its dramatic healing powers, often without adequate knowledge of its preparation, administration or effect.

The recent release of sulfapyridin, which is supposed to be a specific against pneumonia, illustrates this point exactly. Sulfapyridin has been given very loud and noisy publicity, but, sad to say, the clinical results in the treatment of pnenmonia have not always been so flattering. Though splendid results have been reported in some cases, others show the development of hemolytic anemia and agranulocytosis, which have resulted in death.

The newspapers did not hesitate to report in regard to the recent illness which finally resulted in the death in Chicago of one of the nation's most noted surgeons, that the use of sulfapyridin, which is supposed to be a specific against pneumonia, had so depleted the red blood cells of the patient that it was necessary to resort to blood transfusion. In due course of time, perhaps, sulfapyridin may be placed in a more stable category, after it has been more carefully tested. Until this is done, conservatism in its use is certainly highly desirable.

Every osteopathic physician is aware that he has at his disposal for the treatment of pneumonia, osteopathic manipulative procedures which have been proved by thousands of accurate case histories to be far more "specific" and effectual than any drug yet devised. Osteopathic manipulative treatment is unique in that it strikes at the primary disease, in this case pneumonia, and minimizes the development of any secondary condition such as fatal hemolytic anemia or agranulocytosis.

Another outstanding drug in this same category is sulfanilamide, which has been demonstrated to be of some curative value in a number of diseases, such as gonorrhea, streptococcic infections, meningitis, pneumonia, septic sore throat, and many others. Yet, one author titles an article, "Gonorrhea is conquered again." In this paper we are not so much concerned with the efficiency of the drug for combating the primary condition, as in the effect which it has upon the blood cells in producing hemolytic anemia and other changes. For a time, case reports were void of any untoward effects following the use of sulfanilamide. Now, after its widespread use in so many different conditions, there are many reports dealing with the development of acute hemolytic anemia during its use. For example, in septic sore throat and meningitis, hemolytic anemia as a complication was unknown until sulfanilamide was used in large doses. This warning should be heeded: The blood of patients receiving large doses of the drug should be examined frequently for evidences of red blood cell destruction and regeneration. It seems quite possible that certain individuals are more sensitive to large doses of sulfanilamide than others. The appearance of immature erythrocytes or a leukopenia is an indication for the physician to pause in the therapy. Such control of the blood picture is particularly desirable where intense or prolonged use of the drug is projected. The dangers of out-patient treatment with this drug is evident and its use should be permitted only when the toxic effects may be very carefully guarded against.

Here is a typical case report: A woman, 32 years of age, suffered an acute attack of gonorrhea. Fifty grains of sulfanilamide were administered each 24 hours for three days. On the third day the dose was reduced to 35 grains each 24 hours and this dosage maintained. After fifteen days' treatment, the gonorrheal infection was checked. During this period, the red blood cell count dropped from 4,540,000 to 2,180,000 and the hemoglobin from 75 to 38 per cent, with an associated anisocytosis and a mild degree of leukopenia. (In some cases, the leukopenia is more manifest than the anemia.) The patient made an uneventful recovery following repeated small blood transfusions, and iron and liver therapy.

It is true that in a large majority of cases treated with the drug the blood picture is unaffected. Yet again, the patient may be laboring under the handicap of an anemia if the blood picture is not carefully guarded during the course of treatment.

In addition to sulfanilamide, the following drugs are known to depress the function of the bone marrow: dinitrophenol, arsphenamine, novaldin and aminopyrine. These drugs chiefly affect the white blood cells, causing an agranulocytosis. Aminopyrine, or its compounds, is the chief offender of the group, being responsible for about 80 per cent of the reported cases. Agranulocytosis has practically disappeared from Denmark where the drug is no longer used. In the United States the incidence is also decreasing because of the more cautious use of aminopyrine. Some of the preparations containing aminopyrine are allonal, cibalgine, phenopyrine and pyramidon.

Aminopyrine tends to affect those past the prime of life, particularly women after the menopause. Agranulocytosis due to aminopyrine is seen more frequently among these persons associated with the medical profession than among the general public. Doctors are deluged with samples of new drugs which turn up in the form of attractive and easily ingested tablets, accompanied by readable fiction indicating their use and efficiency in common ailments such as rheumatic disease, sleeplessness, headache, etc. Wives and nurses are the first ones upon which these sam-

ples are tried. There is some indication that the sex hormones have something to do with agranulocytosis, since aminopyrine has a more drastic action after the menopause when there is a decline in endocrine secretion. Aminopyrine is a coal-tar derivative with a benzene ring. Benzene is known to be a definite bone marrow poison. Arsphenamine and dinitrophenol also have a benzene ring. Kracke and Parker[1] report that only drugs containing a benzene ring with a substituted amino (NH_2) group have been implicated in causing agranulocytosis. For example, aspirin and acetanilide each have a benzene ring, but do not have the substituted amino group and hence do not produce agranulocytosis.

Some clinicians feel that aminopyrine still has value as an antipyretic and analgesic and should not be condemned any more than arsphenamine, bismuth, gold, mercury, or silver, all of which act adversely and may be causative agents of agranulocytosis as well as unfavorable reactions. Certainly we would not condemn the use of arsphenamine in the treatment of syphilis just because it may produce aplastic anemia when injudiciously used.

It so frequently happens that a distorted blood picture is detected by a physician who is entirely unaware of previous treatment of the patient by self-imposed remedies or by another physician. So many of the serious cases are brought to light in this way. This emphasizes the importance of a thorough examination of patients, including thorough blood studies. Although severe and fatal blood dyscrasias resulting from drug therapy are relatively rare, their possibility should be kept in mind.

Thus, a few of the more common drugs have been discussed, which may serve as chemical hemolytic poisons resulting in anemia.

B. Specific Infections.—Hemolytic anemia may be produced as a result of specific infections culminating in septicemia. In the normal course of malaria, many red blood cells are destroyed.

C. Increased Fragility of Erythrocytes.—In certain splenic disorders there is an increased fragility of erythrocytes, as in congenital familial anemia in which the spleen is overactive in blood cell destruction.

D. Endogenous Hemolysins.—There is the rare condition of paroxysmal hemoglobinuria, in which a sudden hemolysis by autohemolysins of the patient's own blood occurs. This is by no means a complete list. Additional hemolytic agents resulting in anemia might be included, but are of only occasional clinical importance.

II. ANEMIAS DUE TO DEFECTIVE BLOOD FORMATION

Those anemias resulting from defective blood formation strike directly at the hemogenic side of the blood balance. They are continually encountered in practice and often present perplexing problems in diagnosis and treatment. There are three types: first, those due to iron deficiency; second, those due to lack of the specific antianemic factor; and, third, those due to aplasia of the bone marrow. The first and second are by far the most common and will be emphasized in this discussion.

Iron Deficiency Anemia.—The essential feature of iron deficiency anemia is defective hemoglobin formation. Iron is essential in the hemoglobin molecule. Unless iron is freely available, the red blood cells not only will be decreased in number and size, but also will contain an inadequate amount of hemoglobin, thus establishing a hypochromic, microcytic anemia, with low color and volume indices, and low hemoglobin percentage and total erythrocyte count.

Iron absorption takes place throughout the entire length of the digestive tube, though it is chiefly accomplished in the upper portion of the small intestine. It rapidly disappears from the blood stream and is stored chiefly in the liver, but to a lesser extent in the spleen and kidneys. It is an interesting fact that organic iron is only slightly released by digestion, with only a minimum amount absorbed. The organic iron in egg yolk which is combined with hematin, is a good example of this feature. It is the inorganic iron which is freely available. In most foods it is in the ferric state. This must be acted upon by hydrochloric acid, changing it to ferrous iron, in which form absorption may occur. It must be kept in mind that only ferrous iron can be absorbed. In this very important fact lies a crucial feature of iron deficiency anemia, as will be brought out in the following discussion:

Of all conditions producing illness and loss of economic efficiency, iron-deficiency anemia is perhaps more frequently encountered by the physician in his daily work than any other.

There are four primary etiological factors in iron deficiency anemia: First, deficient intake; second, defective absorption; third, increased demands; and fourth, defective production of hemoglobin by the bone marrow. These factors may operate either alone or in conjunction with one another.

1. Deficient Intake: In general, the diet of the poor is deficient in minerals, vitamins, and protein with a proportionately high carbohydrate intake. The economic status is not always responsible for this deficiency, for many individuals omit these items from their diet because of prejudice or ignorance. Others suffer from impairment of appetite and digestion because of some local disease. Regardless of the cause for the deficient intake of iron-containing foods, the result is the same. The average adult requires an intake of 15 to 20 mg. of iron daily. Children require 0.5 mg. per kilogram of body weight. If this is not maintained, deficiency will result.

2. Defective Absorption: The chief factors leading to defective absorption are biochemical changes occurring in the upper region of the small intestine associated with achlorhydria, intestinal hurry and local pathology of the digestive tube.

As stated before, hydrochloric acid of gastric juice is normally an important factor in the liberation of iron from food and the conversion of it from the ferric to the ferrous state, so that absorption can take place.

The high incidence of achlorhydria in severe cases of chronic hypochromic anemia is a striking fact. Of course, hypochlorhydria is present in a large number of healthy individuals without the presence of anemia. This may be explained by the fact that their diet includes excessive iron and enough is absorbed without the aid of normal gastric acidity. However, when other organic diseases appear, such individuals are prone to develop anemia.

There are a number of reports of simple achlorhydric anemia developing after operations on the stomach, but the coincidental achlorhydria may not be the only factor, since impairment of digestion

from altered gastric motility and defective absorption from intestinal hurry secondary to the operation are additional factors of importance.

Because of the disagreement of authorities, it is impossible to make a definite statement in regard to the true significance of achlorhydria in relation to anemia. In many individuals, the normalization of iron metabolism seems to restore completely the activity of the gastric glands in the production of hydrochloric acid. This would seem to indicate that achlorhydria does not necessarily precede the onset of anemia, but may be simply one of the distorted features in the biochemical changes associated with nutrition.

3. Increased Demands for Iron: Increased demand for iron stands as one of the most important etiological factors in the production of iron deficiency anemia. The rarity of anemia in males who are of the same social group as women who are victims, suggests very strongly that the reproductive demands in women during menstruation and pregnancy deplete the iron reserve. Statistics show a definite improvement in the concentrations of hemoglobin after the menopause. As long as the diet is normal in iron and the menstrual loss of blood does not exceed 140 cc., anemia is not likely to ensue. However, if the loss exceeds this amount over a period, anemia often appears. The demands for iron during pregnancy may be represented as follows:

Iron content of fetus at term	400 mg.
Iron content of placenta and uterus	150 mg.
Iron content of blood lost after delivery	175 mg.
Iron content of milk during 6 months of lactation	180 mg.
Total	905 mg.

This loss of iron is normally compensated for unless there is dietary deficiency or repeated, frequent pregnancies, in which cases anemia may be expected.

Other increased demands for iron are external blood loss from any source, periods of active growth in children and acute or chronic infections.

4. Defective Production of Hemoglobin by the Bone Marrow: Hypofunction of the bone marrow occurs secondary to infections and to intoxications of metabolic origin. It cannot be considered as an individual entity, since so many isolated factors are responsible for this failure in hemopoiesis, many of which have already been discussed, namely, diet deficient in meat and iron, hypochlorhydria, hypothyroidism, multiple pregnancy, excessive uterine bleeding or other profuse hemorrhage. If the bone marrow is not supplied with the necessary raw materials, normal erythrocytes will not be produced in sufficient number.

ANEMIA IN CHILDREN

Anemia in children is often overlooked. During the later months of pregnancy the fetus stores a reserve of iron in the liver to manufacture hemoglobin during infancy. The high erythrocyte count of the newborn also represents a reserve. In fact, the normal infant has an iron store sufficient for six months in spite of the fact that milk is a very poor source of this element and the demands of growth are great. If the child enters life with an iron deficiency, it certainly must be supplemented long before it would be secured in foods other than milk. This is particularly true in the cases of premature infants, because the fetus receives the greater portion of its iron reserves during the last two months of gestation.

2. Anemias Due to Lack of the Antianemic Factor: Addison's pernicious anemia ranks equally in importance with the iron deficiency anemias. Pernicious anemia was first described by Addison almost 90 years ago. In the ensuing time diagnostic procedures have improved to such an extent that it is doubtful whether there is any other disease in which the diagnosis can be made during life with a greater degree of certainty. In fact, the clinician having the advantages of repeated blood examinations and therapeutic tests may be more accurate in his diagnosis than the pathologist at autopsy. Pernicious anemia is a disease in which so many different diagnostic features are constant. In fact, it is plausible to diagnose the disease even before blood examination is made, if a patient is past middle age, having the symptoms common to all the anemias such as dyspnea, palpitation, recently developed pallor, weakness and ready fatigue; and in addition achlorhydria, recurrent glossitis and paresthesias of the hands and feet.

Whitby[2], gives seven cardinal diagnostic signs of pernicious anemia: first, achlorhydria; second, macrocytosis; third, high color index; fourth, response to anti-pernicious anemia therapy; fifth, paresthesias; sixth, glossitis; and seventh, leukopenia or absence of leukocytosis.

It is definitely a blood dyscrasia in which there is defective erythrocyte formation. There is a great reduction in the number of red cells and consequently in hemoglobin percentage. In severe cases, the total count may drop below one million per cubic centimeter of blood. The individual cells are larger than normal and contain an increased amount of hemoglobin, giving a color index above one. Thus, the blood picture is one of hyperchromic, macrocytic anemia. However, the macrocytosis with increase in cell size and hemoglobin percentage cannot compensate for the drastic reduction in total count.

We are indebted to Minot and Murphey in 1926 and to Castle in 1929, for their splendid researches on the cause and treatment of pernicious anemia.

Minot and Murphey found liver to be the most effective measure in treatment. They postulated that it contained an antianemic factor which was absent from the liver of untreated subjects. Castle went one step farther and found that the gastric contents of a normal individual secured during the digestion of meat is curative in the treatment of pernicious anemia. However, the gastric contents of a patient with pernicious anemia had no therapeutic value. It is now conceded that the gastric glands of the stomach release a so-called "intrinsic factor" which acts upon an "extrinsic factor" in the diet, producing the "antianemic factor," which is absorbed into the blood stream, carried to the liver, and stored until needed in hemopoiesis. This "intrinsic factor" is thought to be distinct from the other gastric secretions. The exact nature of the "extrinsic factor" is yet undetermined, but it is known to be present in beef, rice polishings and wheat germ. Information in regard to the true nature of the resulting "antianemic factor" is likewise vague, other than that it is essential to the bone marrow, not only in the construction of the hemoglobin molecule, but also in the actual produc-

tion of erythrocytes and the maintenance of a normal production schedule.

It is because the "antianemic factor" is stored in the liver of all animals as well as the human subject, that it provides the ideal and specific therapeutic product in the treatment of pernicious anemia. It is an interesting fact that the ever-present achlorhydria gradually disappears when treatment is instituted. This bears out the conclusion arrived at in regard to the iron deficiency anemias, namely, that achlorhydria is not necessarily a causative factor, but rather an associated disturbance.

3. Aplastic Anemia: Aplastic anemia is the third and last form classified with the anemias due to defective blood formation. Only a limited discussion will be given. There are two major types: idiopathic and secondary.

Idiopathic aplastic anemia is a severe, fatal, normocytic, normachromic anemia of unknown cause, usually occurring in young adults and lasting only a few weeks without treatment; though life may be prolonged temporarily by blood transfusion. The disease is characterized by a complete aplasia of the hemopoietic tissues. For a time, small units of bone marrow remain active and undergo hyperplasia in an attempt to compensate for that which has been lost. Blood examinations disclose that all of the cells formed by the hemopoietic tissues are gradually reduced in number and at about the same rate. Eventually, all bone marrow activities cease and death results.

Secondary aplastic anemia is similar in nature, except that the causative factors are known. It is brought on by prolonged exposure of bone marrow to x-rays, radium or certain chemicals. Some of the injurious chemicals are the nitro- and amido- compounds of benzol, toluol and phenol. The outcome may be fatal in spite of the withdrawal of the drug. There may be some overlapping of the aplastic and hemolytic anemias in this regard. This paper will not embrace a discussion of the remaining forms of anemia such as sickle cell anemia, splenic anemia, congenital familial anemia, paroxysmal hemoglobinuria and others.

TREATMENT OF THE ANEMIAS.

Treatment of any of the various forms of anemia may be approached in a very sensible and deliberate manner, provided the patient seeks advice before the condition has become critical. Elaborate attempts have been made to establish definite blood findings for all of the various diseases to which humankind may fall heir. Only rarely are such findings diagnostic. It is true that the blood stream reflects the state of health or disease in general, but seldom are we able to use a blood report for more than confirmatory evidence in the establishment of a definite diagnosis for a single given disease.

Because anemia is so frequently a symptom of some other primary pathology, we may easily be misled. It has been the aim of this paper to point out some of the difficulties encountered in this regard.

Treatment of the various forms of anemia, once a diagnosis of the entire condition has been made, may be outlined under a few very simple headings.

First, remove the primary cause when it can be found.

Second, provide an adequate well-balanced diet, rich in liver, kidney and beef muscle and supplemented by vitamins B and C, which have been demonstrated to be of value.

Third, administer iron. This may be in the form of iron and ammonium citrate, ferrous sulphate, Blaud's pills or any of the multitude of iron preparations which are of proved value. Oral administration is most effective. Intramuscular or intravenous injection is much less effective and is advised only in rare cases where gastrointestinal disturbances prevent oral administration.

Fourth, administer liver. Liver is practically specific for pernicious anemia, where the antianemic factor is lacking. If sufficient quantity can not be taken by mouth, intramuscular injection of concentrated extract may be given. For the past few years there has been an overemphasis upon liver therapy for the anemias in general. Clinically, it may be said that there are two types of anemia, those which respond to liver therapy and those which respond to iron administration. Although it does little harm to include liver in the treatment of chronic malnutrition anemia, recovery certainly will not ensue until massive doses of iron are added. In this connection the product, ventriculin, may be used instead of liver in cases of gastric carcinoma, since it contains the intrinsic factor which is not being released.

Fifth, give blood transfusions. In severe anemia, repeated small transfusions of 500 cc. of blood is imperative.

Sixth, administer hydrochloric acid. Its use is considered of questionable value by most clinicians, as far as the recovery from anemia of whatever type is concerned. However, it may aid in relieving digestive difficulties. In most cases the achlorhydria disappears as the anemia improves.

Seventh, give osteopathic manipulative treatment. It is impossible to overestimate the value of osteopathic manipulative treatment in the anemias by establishing and maintaining the normal "structural integrity of the body." A. T. Still makes this comment in regard to anemia: "When all is told, we find in conclusion they have simply told us what effects of the disease upon bone, blood, nerve and other tissues have been observed." When osteopathic treatment is directed toward re-establishing normal nerve and blood supply to the hemopoietic tissues, there is no more effective means of maintaining a normal hemogenic-hemolytic blood balance within the body.

722 Sixth Ave.

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Fundamental Fragments
1. Circulation

CARL P. McCONNELL

Editor's Note: Dr. Carl P. McConnell, student and philosopher, pioneer in osteopathic research, writer of the first osteopathic textbook, onetime President of the American Osteopathic Association, later editor of this JOURNAL, set down certain notes which he said "are hastily presented, in fact simply fragments." He did not live to polish them. If his references are incomplete, it is because there was not time to ask him even to amplify them. He said of these notes:

"I have a definite purpose in jotting them down. It is a two-fold purpose. One is to show the absolute necessity for a comprehensive osteopathic technic if the profession is going to make a complete clinical success of its heritage; the second is to offer some suggestions, as I view the osteopathic field, pertaining to the enormous wealth lying in the background of osteopathic science. To me, the road of intellectual conviction and satisfaction is the one possible route to develop earnest and painstaking osteopathic practitioners. Some time ago I discussed osteopathic science with a professor in the science department of an Eastern university. He summed up the scientific osteopathic status thus: 'It is the backbone of medicine.' As a profession we do not want tó drift into the situation of an Enoch Arden."

The occasion of his writing these notes was some question about the program and the activities of the Section on Osteopathic Manipulative Therapeutics. Dr. McConnell said in a letter:

"I strongly feel that this section, if carefully handled, will redound to the credit of organized osteopathy; first, in helping to develop the wealth of clinical material that now lies dormant; second, in interesting a goodly number of practitioners in the benefits to be derived from our societies. All of us are prone to drop into grooves in so far as our activities are concerned. At the same time each one has something constructive to offer. Given an opportunity for an exchange of practical ideas, a wealth of material may be unearthed. This means, as I see it, two things; First, finding out why the other fellow is especially successful in a certain field; and second, getting at the background of osteopathic principles.

"In speaking of osteopathic principles here I have in mind the concept of mechanical physiological integration or biophysics, which is correlated with all organized activities of the body. Unquestionably, this is a field that has barely been touched, a vast undeveloped physiological field. It comprises the osteopathic approach, and it is certainly in the ascendency in present-day biological development. In a word, our profession is interested in a far greater field than many seem to realize. Physical organization is the key point to practical clinical effort."

In another letter he said of these "fragments": "It may be said in criticism that some of my statements smack of the abstract. On analysis I do not think so. Dr. Still's greatest concern for the future of osteopathy undoubtedly rested in the matter of viewpoint, of concept, upon which technic directly depends.

"Naturally one of my most vivid osteopathic remembrances bears upon the personal instruction given by Dr. Still several hours a day for month after month in the nineties. It was the *approach* that he tried so hard to instill. And present-day science is certainly adding confirmation to osteopathic clincal evidence.

"You are well aware personally how he viewed a case, in detail and with great respect for the properties of nature. This is also very true of his writings. Any rereading of his paragraphs always reveals some new detail of viewpoint. I know that many students of osteopathy are impatient when principles are discussed. They want technical action, at once, forgetting that technic can amount to but little till the full diagnostic picture is revealed. This is exactly why many are not practicing a comprehensive technic. Also, why innumerable medical theories, which are constantly changing, confuse them. They get the idea that the latest theory, especially if it is dramatized, is the most important, something akin to the latest sensational newspaper story. On top of it all, an exaggerated emphasis upon chemical man adds to the bewilderment.

"I am not criticising the 'latest' provided it is correctly interpreted. Let them take some of the 'latest,' for example, Hippocrates relative to 'organization.' Then come down to Drummond, some chapters on his 'Ascent of Man,' of the eighteen-nineties, on 'oneness.' Follow this by perusing very recent statements of Northrop, 'Science and First Principles,' saturated with Greek thought and present-day science. These references are only two or three among scores, mentioned for the special items of 'organization,' etc."

The use of such expressions as "mechanical physiological integration" was common in Dr. McConnell's writings. It will be observed in the second paragraph in the "fragment" below that he says: "The mechanics of an organism are an inherent portion of the physiological process." He used such expressions deliberately, and because they occur so frequently in these "fragments" it may be well to discuss the point at some length here. Some years ago there was criticism of the expression, "dynamic properties of structures," in one of Dr. McConnell's editorials in this JOURNAL. The critic said that structure is the arrangement and union of parts, while mechanics is the science of forces and their effects, including dynamics which deal with forces modifying the state of rest or motion; that the very first law of mechanics is absolute—that a body cannot modify its own state of rest or motion, and that the expression, "dynamic

properties of structures," could not be correct. Dr. McConnell said:

"Possibly in one sense the idea could not be sustained, but I am very much inclined to think that biologically it is sound. If there is no dynamics of structure what maintains a fingernail, a hair, a glandular cell? Is the selectivity of a cell based on structure? What determines the specific qualities of the senses? Where does structure end and physiology begin? Structure is the basis of function and function determines structure. The unit of a cell is the process which is inclusive of both structure and function. Specific activity is dependent upon certain cell characteristics (structural make-up). In fact structure and function are inseparable. Figuratively they represent two sides of a shield. Such being the case, structure must contain dynamic qualities. Perhaps it is to be found in the dynamic forces of environment. Where does the dynamics of environment begin and end?

"I have tried to get away from too much of the machine idea, although up to a certain elemental point the idea is sound enough. For a machine is conditioned from without; a bodily mechanism is conditioned from within; a vast difference. Then there is not only specific coordination between structure and function, but, in addition, there is specific coordination between structure, function and environment. Does this not imply dynamics of structure?

"The allopathic profession overstresses the chemical. We should round out the picture through greater development of the physical (not alone simply mechanics) and environmental factors. This is sound biology, I think.

"Admittedly it requires both structure and function for bodily activity to operate, and mechanics is an important aspect, but is not structure something more than mere framework?"

On this foundation we present the first of five "fundamental fragments."

It is instructive to think of the circulation as constituting a closed system. It supplies nutrition to the various tissues in accordance with special requirements, and it receives chemical products from the several organs.

From a technical standpoint there is particular interest in the fact that the mechanics of circulation are correlated with chemical activity. This means that mechanical factors are representative of an underlying process. Herein is contained science and art, because the mechanics may be subjected to measurement.

It is easy to lose sight of the fact that the mechanics of an organism are an inherent portion of the physiological process; wherein structural surface, face, and interface are integral mechanical requirements for gaseous interchange and various chemical activities. The mechanics of circulation extend to, and are a portion of, the physiological energetics of the inter- and intra-cellular operations. The reason for current physiological disproportion is the undue accentuation of chemical man.

Organization constitutes the keynote, of which the mechanics are a vital[1] and tangible part. This is true of all regions of the body. Each portion of the physical system is a specialized participant, and all are interrelated, presenting attributes of reciprocalness between organic cell and circulatory tissue. The laboratory within the capillary bed is of the first order. The exactness and comprehensiveness of this fact are highly significant.

In view of the general and local requirements of circulation, and of the tangibleness of its mechanics, and of the specialized properties of differentiated tissues, it is obvious that structural rehabilitation comprises a sound method of health obtainment.

An important aspect of the osteopathic lesion, seldom stressed, is that each local or areal coordination must be coordinated with the whole body. This is a requirement of each part of the body in order that structure and activity may be maintained. It constitutes a strong argument for the physiological validity of the lesion. The coordinative effect of any one system is a different matter from the sum total of the parts, whether it pertains to circulation, chemism, nervous impulse, or anything else; and still more so from the unified activity of all systems.

Haldane and Priestley show in their work[2] for example, that the rate of circulation through each region does not depend primarily upon the heart's activity, but instead upon the coordination of the local and the general circulation. In other words, the rate is determined by the requirements of the tissues. This places structural and environmental adjustments (and these cannot be confined to any one locality) in indispensable rôles. This approach to the problem gives great weight to the validity of the lesion, mechanically and biologically. Dr. Still in his clinical work was insistent on full attention to all abnormalities.

In our mechanical haste we are apt to overlook the remarkable coordinative delicacy and effectiveness of structure, nervous impulse, capillary circulation, ferments, solvents, etc. This coordination has a striking lesson to teach in preciseness of technic. One should keep in mind that innumerable factors constitute the lesion—stresses, strains, nervous association, circulatory and chemical patterns, etc. There never are any two lesion-patterns alike. Realizing this gives one a far different biological conception of the lesion from the relatively simple one of statically malaligned bony parts. One, then, begins to see how and why each lesion necessarily demands its own technic solution. Standardization of technic based on architectural design and structural laws is helpful to a certain point; but this is only a common foundation upon which the problem of the requirements of each case must be solved.

A complete clinical result depends on the full appraisal of the structural condition; not on a piecemeal affair. Owing to the nature of an organ, a special instrument representative of both local

1. Cowdry, E. V.: Textbook of Histology. Lea & Febiger, Philadelphia, 1934, p. 366.
2. Haldane, J. S., and Priestley, J. G.: Respiration. Oxford University Press, New York, 1935.

and general physiological qualities, it is essential that all compartments of the unified body be considered carefully in order to secure the maximum effect possible.

I am strongly of the opinion that the greatest technical weakness of each of us as practitioners is the one of incomplete structural diagnosis. On account of the particular demands of what constitutes circulatory integrity, a continuous dependence upon the normalness of every nook and cranny, each of us is constantly overlooking important structural considerations of the organs, especially of their interrelationships; which if normalized cannot be otherwise than of far-reaching healthful influence, in fact a vital necessity. In substance this means a distinct change in the standard of diagnostic values; which should be distinctively reflected in therapeutic measures. A complete osteopathic approach is a *sine qua non* for the fulfillment of scientific procedure.

It should be evident that the plane of physiological mechanics is of an organic level; certainly something more than an abstraction of mechanics *per se*. It is the within conditioning that is ultimately important. I suspect that one difficulty of viewpoint lies in abstraction; thinking of what is really biophysics in terms of a machine[3]. In reality, all chemical activeness is correlated with physical order. There is a distinct hierarchy. Attaining the significance of this approach is invaluable; not only scientifically but also technically. A sense of proportion is essential. I think it is exceedingly important to keep the inherent rôle of physiological physics constantly in mind.

After this manner, one obtains a new and an essential concept of the meaning of function: clearly portraying, I believe, that change of the structural system is identified with change of the functional expression, and of the energy equivalent. But also after this manner, the restricted meaning of "systems" should be kept clearly in mind so that technical shortcomings may be guarded against. In short, unification, reciprocalness and integration connote the significance of "oneness" biologically which Dr. Still stressed; yet, at the same time, another element of practical specificity lies in the necessity of careful detailed search for abnormal structural links. Physical order and natural immunity are intimately related.

Now, what does the above imply technically? Directly that in each case a special clinical research problem is presented; which is the keypoint to clinical advancement. The more direct the observation, search, analysis and application, the more effective the therapeutic result. Emphatically, each case is a research problem; following no detailed precedent, but always in accordance with fundamental principles. Without observance of basic principles results are uncertain. Therapeutic routinism should be guarded against.

Technical uncertainty arises from diagnostic inconsistency and consequent incompleteness of application. The groundwork of method depends on systematic and comprehensive search. Diagnostic data are of comparatively little help unless the great principle of correlation is employed.

No one, of course, will question the importance of the great coordinator, the nervous system. Although the rule of the artery is supreme, and the nerve is king over its particular territory, the essence of structure is function. Function rests in the special system of ordered structure[4]. And the characteristics of its energy unit complies with the always special differentiated construction, which extends to the deeps of embryological development. Yet it should not be overlooked that all systems are functionally interrelated and that transformed energy is correlated with the particular physical pattern. The therapeutic implication is clear cut.

It requires no stretch of the imagination to appreciate that the physiological process is based on the interrelationship arising from the directive inherent properties and their modification due to environmental influences, which gives a distinct clue to exciting factors of disease[5] because action and reaction are definite and distinct. A structural lesion changes the environment of cellular activeness, directly reflected in functional change. Lack of orientation here is a frequent source of error. A lesion necessarily presents the trend of an organism under certain conditions, and is perfectly natural, having a characteristic history. Of necessity, the circulatory setup portrays a clue of prime importance because its position is physiologically basic. In a most substantial manner this proclaims the scientific soundness of the osteopathic approach. Dr. Still's statements relative to arterial supremacy, and to the rôles of edema and fermentation, are important physiological facts, applicable to every tissue.

In a sense function is always "becoming," in accordance with the interrelationship of the energies as expressed by the various physical systems. Function does not rest alone in any one physiological instrument, for mutuality is a requirement. This is highly important technically. The circulation is expressive of the underlying motion or activity. The structural lesion is some degree of immobility, resulting in impairment and consequent chemical derangement. The physiological interrelationship is an important item of osteopathic science.

Spatial considerations are of course important, for structural form is a requirement. Certain physiological properties are thereby determined. But these are only part of the story. Temporal consideration is also important, for sequence, events, or history also determine physiological properties. Time-period of treatment and the time-spacing between treatment and treatment are very important. (Note Dr. Still's writings in regard to this.) The two, space and time, should be viewed in totality[6] for they are distinctly coalesced; back of them are the fundamental concepts of matter and motion which Dr. Still so consistently emphasized. There is a high degree of therapeutic practicalness in this viewpoint.

For illustration: a thyroid gland upset is necessarily felt throughout the whole organism, by way of

3. Mathematical measurement is a necessary part of science. But there are no mathematical entities in nature. Mathematics is a chapter of formal logic. (Russell, Bertrand: Herbert Spencer Lecture.)

4. Wilson, E. B.: The Cell in Development and Heredity. The Macmillan Co., N. Y., 1925. This author calls attention to "ordered structure" as the background of chemical activity.

5. Bacterial invasion for instance. It is here that much present-day confusion arises. Too few practitioners are interested in fundamentals. Exigencies alone claim their attention.

6. Woodger, J. H.: Biological Principles. Harcourt, Brace and and Co., N. Y., 1929.

the closed system of the circulation. What is taking place "now" is the result of antecedent conditions. The same is true of a disturbance of the islands of Langerhans. No less is it true of the reticuloendothelial system. Certain tests will give information, of the particular moment. The technical point is that the significance of organization and the possibility of its detailed change should be fully borne in mind. Naturally a normal colloidal system requires the correct ingredients; but arrangement depends primarily on ordered structure.

Thus one should not rest content with a partial appraisal. The data of chemical derangement do not constitute a diagnosis, particularly from the standpoint of pathogenesis. In that case, ordered structure would be inconsequential. On broad lines, the whole picture is an anatomical one. It cannot be otherwise from the basic point of organization, of a physiochemical going concern supported by *vis medicatrix naturae*.

Indeed, obtaining circulatory integrity is pregnant of vast consequences. Every group of cells probably contains specialized properties; such is the requirement of the physiological "oneness" of the body. In osteopathic therapy this means painstaking diagnosis of all structure under *functioning* conditions. Knowledge of these facts requires skilled tactual also of the body in totality; because circulatory demands are comprehensively insistent.

Sigmoid Flexure Deformities*

W. CURTIS BRIGHAM, D.O.
Chief of Staff, Monte Sano Hospital
Los Angeles

"The sigmoid colon, the continuation of the large intestine, begins at the crest of the ilium as a loop of varying length, which is attached by a mesocolon, and ends at the middle of the third sacral vertebra. Its usual length is from ten to eighteen inches but is occasionally much longer. While it is true that the gut does not always become free at the crest of the ilium, but may descend, bound down closely, to the iliac fossa for some distance, it is best to regard the sigmoid colon as beginning at a definite although arbitrary point rather than at the less certain one at which the gut really has a mesocolon. Moreover, there is no great inaccuracy in the statement that this generally occurs at the crest of the ilium or just below it. The simplest form of the sigmoid flexure is a loop. If it be a small one, it usually is made of the last section of this section of the gut; very often the first part is but slightly free while the last part is very much so. Short sigmoid colons especially with short mesenteries, can hardly vary much from a simple loop; under opposite conditions, however, they may present the most diverse forms, so that a definite shape can hardly be assumed. The M-form is common. We have seen the sigmoid disposed in three parallel vertical folds occupying all of the left iliac fossa and overhanging the true pelvis. As the sigmoid colon descends along the sacrum it usually curves to the right across the median line."

I have quoted the full description of the sigmoid flexure as given in Piersol's "Anatomy." The author does not mention deformities of the sigmoid flexure, but he has described what I believe to be hindrances to the function of the sigmoid flexure. Any anatomical variation that results in defective function of the sigmoid should be classified as a deformity. Normally no segment of the intestine is without a mesentery of sufficient length to permit free peristalsis —a function that necessitates a great variation in the longitudinal as well as the vertical dimensions. Certainly a segment of the intestines without a mesentery would necessitate the generation of much more force proximal to the immobile segment than would be required in the presence of a free mesentery. It is evident under such circumstances that the patient would be more likely to resort to laxatives, cathartics, enemas, etc.

Such deformities may be congenital or acquired. Congenital deformities may be found in male or female, but are more often found in the female because of the close proximity of the left broad ligament and its extensions into the iliac fossa. I have found that practically all sigmoids have ample mesentery to permit marked shortening for peristaltic function. Any apparent shortening of the sigmoid mesentery is the result of congenital bands or adhesions. I may call the congenital deformity a sigmoid-tie as compared to a tongue-tie. The congenital sigmoid-tie is more difficult to remedy than the acquired one, for in the acquired type there is always a distinct line of demarcation between the parietal peritoneum and the sigmoid mesentery or even the sigmoid itself. In the congenital type this may not be true. Like tongue-tie the sigmoid-tie may vary both as to length of the segment involved and the degree of limitation of the mesentery.

The sigmoid-tie is of special importance to the obstetrician and gynecologist because of the intimate relationship of the sigmoid to the left pelvic organs and the sacroiliac and lumbosacral articulations. Many women are free from constipation during only the latter five or six months of pregnancy. Why? Because, due to congenital or acquired deformities, the sigmoid mesentery can not at any other time be elevated above the brim of the pelvis.

It is not necessary for us to discuss here the causes of congenital deformities, but the question comes to the minds of all of us: What brings about acquired deformities? They may be formed as a result of (1) infant enteritis; (2) bad habits formed during the growing period; (3) pressure directly on the rectum during the early months of pregnancy, and (4) birth injury—the infant head pulls the broad ligament down producing trauma resulting in an adhesion of the left broad ligament to the sigmoid.

If the sigmoid becomes loaded either as a result of inflammation or back pressure, the inflammatory

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exudate may be poured out upon the surface of the sigmoid and when it lies in close proximity to the left broad ligament, left tube, or left ovary or to the peritoneal covering of the iliac fossa itself, adhesions may form. I have seen as much as four or five inches of the upper arm of the sigmoid so firmly attached to one or all of these structures that a state of partial obstruction actually existed. During pregnancy the tube, ovary, and broad ligament are gradually elevated until the sigmoid loop may approach normal relationship and then the bowels are naturally freed and elimination more nearly approaches normal. If, however, the attachments are in the firmer structure of the left iliac fossa, there may be sharp angulation produced between these attachments and the attachment to the left broad ligament. Under such circumstances constipation would be greatly aggravated.

Reflexly the irritation caused by a loaded upper arm of the sigmoid may cause muscle spasm, joint edema, and soreness and skin sensitiveness in the lumbosacral region. Muscle spasm may in turn, by its constant pull, cause definite spinal, lumbosacral, and sacroiliac lesions. Under such circumstances the muscle spasm cannot be permanently relieved by any method of adjustment. Every one of us has seen a case or cases return at varying intervals for the correction of these lesions. Occasionally they become so severe as to render the patient bedfast. She complains of lumbago or neuritis or cramps as the case may be. We must never overlook the possibility of these recurrent attacks being caused by pelvic pathology. Many women suffer from endocrine disturbances as a result of toxic materials formed in and absorbed from the colon because of the impossibility of normal mechanical elimination. The secondary results from such deformities vary greatly. To enumerate some of them: chronic or recurrent headaches, so-called bilious attacks, arthritis, neuritis, asthenia, gall-bladder disease, dysmenorrhea, amenorrhea, asthma, disturbance in vision, dental defects, obesity, allergies such as asthma and hay fever, frequent colds, upper respiratory catarrhs and so on almost ad infinitum.

It is impossible to stabilize colon chemistry in one suffering from a severe sigmoid deformity. Yet stabilization of colon chemistry is absolutely essential to the stabilization of health. Many cases of acute appendicitis are secondary to backup of putrefying material through the ascending, transverse, and descending portions of the colon because of a limitation of movement in the sigmoid. Patients suffering from marked alkalinity of the colon all complain of soreness along the colon. Sometimes the abdomen becomes so sensitive that even the pressure of the clothing causes pain. In practically all cases pressure of varying degrees internal to the anterior superior spine of the left ilium causes abdominal muscle spasm and decided flinching. In more advanced cases there is also sensitiveness on deep pressure above the crest of the left ilium. Reflexly there is muscle tension in the vertebral groove in the left lumbar region frequently extending down over the sacroiliac articulation. If the colon remains loaded, there will be also sensitiveness over the ascending colon and in the right iliac fossa. Many cases have been operated on for chronic appendicitis and had the same symptoms persist following the operation—evidence that the cecum and the terminal ileum remain periodically subacutely inflamed. Many times the overloading of a cecum as a result of a sigmoid-tie causes incompetency of the ileocecal valve resulting in the vomiting back into the small intestine of putrefactive material that should have been eliminated.

It has been my privilege to operate on many cases suffering from deformities of the upper arm of the sigmoid mesentery. In only two cases have I found the sigmoid without apparent mesentery, but buried behind the pelvic peritoneum. In these cases I have been able to deliver the sigmoid from its subperitoneal bed and found ample length of blood vessels to give a reasonable sigmoid mesentery length. However, the mesentery is unperitonized and it is difficult to prevent the reformation of the deformity under such circumstances. This may be done only by a more or less permanent anchoring of the apex of the sigmoid loop to the peritoneum just below the umbilicus. In the average case, if the surgeon will pass his hand from the crest of the ilium down along the sigmoid loop he will be able to deliver the loop into a median incision and with slight tension make the sigmoid form nearly a right angle with the descending colon. If, however, a portion of the loop is held down in the iliac fossa, the slight tension on the loop will cause the adhering band to straighten out and it is an easy matter to grasp this band or bands between the thumb and finger. A retractor drawing the incision to the left and forward will make it possible to visualize these bands. If the bands have been produced by adhesions, the delicate white line between the parietal peritoneum and the sigmoid mesentery will be easily visualized. The parietal peritoneum should be grasped with the use of a hemostat and separation between the white line and the sigmoid mesentery should be made. At intervals of one-half or three-fourths inch a hemostat should be applied to the parietal peritoneum. Many cases will require three, four, five, and sometimes eight to ten hemostats to completely control and reperitonize the parietal surface. These may be sewed or tied with fine catgut. I use No. 10 plain. That leaves the parietal wall well peritonized when all of them have been tied or sewed, but the under side of the sigmoid mesentery even extending out onto the gut itself may be quite extensively deperitonized. Reperitonization of these areas must be left to the ingenuity of the surgeon and before closure of the abdomen the sigmoid should be lightly attached by a tab of one of the appendices epiploicae to the under side of the peritoneum and the upper part of an incision that extends up to the umbilicus. Otherwise, the upper arm of the sigmoid may contact the parietal wall where exudate must be thrown for the first three or four days after such surgery and adhesions may be formed. Frequently the upper arm of the sigmoid will be freed as much as four or five inches—quite often six or seven inches and occasionally even more.

SUMMARY

(1) Any limitation of sigmoid peristalsis which interferes with the function of elimination should be called a deformity.

(2) Deformities may be congenital or acquired.

(3) Sigmoid deformities are of very special interest to the gynecologist and obstetrician.

(4) Sigmoid deformities may be diagnosed by palpation, x-ray study, and by symptoms.

(5) Many constitutional diseases are the indirect result of a sigmoid-tie.

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"LET ME HELP"

This is an age of catchwords and slogans. So it is easy to understand when someone says that the sweetest three words in the English language are "Let me help."

What a difference it would make in industry, in government, in international relations—what a difference it would make in our personal, our social, our professional activities—if we would put in the forefront of our thinking, and as a guide for our lives, the watchword, "Let me help."

How can we help? Here is one answer: The things we have to do for the public and for osteopathy demand organization. JOURNAL readers have proved their recognition of that fact—they are members of the American Osteopathic Association and, in most cases, of their divisional societies. The time has come for us to enlist the support of our professional friends and neighbors who are not members—to sell these outsiders on the necessity of taking for their guiding thought those impelling words, "Let me help."

There are many ways to do this. Personal, man to man, neighbor to neighbor, talk will do more in this direction than anything else can possibly do. It must be a well-directed, informative, convincing exposition of reasons for joining. Nonmembers can be found in their own offices, in clubs and other gathering places and at meetings of local and larger osteopathic organizations. Many divisional societies will hold their conventions in the next few weeks, and this will offer some opportunities, but in many cases they will be too late for the 1940 directory.

Thus there is another slogan especially pertinent now. It is hackneyed to the point where one hesitates to use it. But the forthcoming membership Directory of the American Osteopathic Association must be an imposing one. It ought to be the largest in history. Where a new member's name is to be in it, it must be published in THE JOURNAL not later than the November number. That means that the application for membership must be in Central office by October 20. Therefore there seems to be no way to avoid the use of that other slogan and so, along with the magic words, "Let me help," we must place the imperative, "Do it now."

D.O.'S AND THE U. S. ARMED FORCES

War clouds hovered over the World with increasing darkness until the fateful morning of September 1, 1939, which was marked by the invasion of Poland by the fast-moving motorized German army. Those of us who served with the colors in 1917-1918 realize the difficulties of preserving neutrality and peace with honor, while war rages, even though overseas. A strong program for national defense is recognized as necessary to ensure peace. No adequate program of national defense, either in time of peace or war, can fail to take into consideration the utilization of all who are trained in specialties and skills where their talents are most useful, and this includes proper provision for the health and welfare of the military personnel.

The health of the armed forces is vitally important and its maintenance calls for the best services available in modern medical, surgical and hospital science. The osteopathic profession, as a recognized school of healing, provides adequately trained and qualified physicians, surgeons and specialists, who are well prepared to serve their country in the medical forces of the military establishments.

In July 1917, three months after the United States entered the World War, and after the War and Navy Departments had repeatedly refused to accept the proffered professional services of osteopathic physicians throughout the country, bills were introduced in Congress providing for the admission of osteopathic physicians into the Army Medical Corps.

The bills were objected to and stopped by the medics because they contended that passage by Congress would amount to Federal recognition of the D.O. degree in the same class as the M.D. degree; but in 1929, Congress did say in so many words that in the District of Columbia the degree, M.D., and the degree, D.O., are equivalent. The Healing Arts Practice Act for the District of Columbia says:

> The degrees doctor of medicine and doctor of osteopathy shall be accorded the same rights and privileges under governmental regulations."—45 U. S. Stat. 1326.

In 1938 Congress passed a law to declare specifically that osteopathic physicians are "physicians" within the Federal Compensation Act. The object was to make osteopathic professional services available to the civil employees of the Federal government. It reads:

> The term "physician" includes surgeons and osteopathic practitioners within the scope of their practice as defined by state law.
>
> The term "medical, surgical, and hospital services and supplies" includes services and supplies by osteopathic practitioners and hospitals within their practice as defined by state law.—Public Law 558, 75th Congress.

Surgeon General Gorgas wrote to the Adjutant General of the U. S. Army on July 26, 1917, as follows:

> The Judge Advocate General has advised the Secretary of War to the effect that, while the law does not specifically provide that a physician, in order to enter the Medical Corps, must be a Doctor of Medicine, unwritten practice does, and the Secretary has decided in accordance with this

opinion that he will require that a man coming into the Medical Corps shall have the degree M.D.

I hope that this decision, which is in accord with all previous practice will be maintained, and that the degree of D.O. will not be recognized as an equivalent as is desired by the osteopathic physicians.

The pattern has been set by Congress to recognize osteopathic physicians and surgeons as qualified practitioners of the healing art. Since the days of 1917-18, osteopathic physicians have increased in numbers (403 are known to have served in the armed forces of the World War), educational standards have been raised, courses lengthened and facilities for clinical and hospital experience increased. It is unthinkable that bias, prejudice or professional animosity should prevent the armed forces of the United States from having recourse to the professional services of osteopathic physicians and surgeons.

Specialized training is now being given properly to fit civilian physicians and surgeons for the duties in national emergencies. Shall that training be denied to qualified osteopathic physicians?

The personnel of the Medical Corps of the armed forces of the United States is being increased daily. Shall Congress allow "unwritten law" to prevail, or make mandatory the recognition of the degree "D.O." on an equality basis with the degree "M.D."?

WALTER E. BAILEY, D.O., Chairman
Committe to Study Osteopathic
Participation in U. S. Armed Forces.

PUT IT IN WRITING

Osteopathic writers can study with profit the chapter entitled, "Painful Affections of the Lower Back," in the second edition of Christopher's "Textbook of Surgery" recently published. Dr. George J. Conley wrote a very favorable review when the first edition of this work appeared, and the things which he said in general still stand.[1] So the book as a whole is not being discussed at this time.

Dr. M. N. Smith-Petersen, noted orthopedic surgeon of the Massachusetts General Hospital, has for years been writing on low-back and sacroiliac disabilities and their treatment. The chapter he contributes to this book is of interest to osteopathic physicians, not so much for the material contained therein (which is inadequate to say the least) as for the manner of presentation.

He begins his chapter with a subheading, "Anatomy," under which he describes the normal structures (bones and joints) and the common variations in the lower part of the back, bringing out the reasons from a body mechanics standpoint for possible strain in the lumbar, lumbosacral and sacroliliac joints. This is followed by four pages on "Trauma," a goodly portion of which is devoted to explaining the mechanics of an injury resulting from lifting. The emphasis the author places on this common etiological factor in low-back pain is revealed by the painstaking effort he makes to explain the role of the erectores spinae. It is interesting to read also the explanation for sacroiliac disalignment and strain as follows:

1. Jour. Am. Osteo. Assn., 1936 (July) 35:548-549.

During the act of lifting, the hamstrings, with their origin from the ischial tuberosity and their attachment to the tibia and fibula, are held taut to prevent the pelvis from tilting farther forward; consequently the leverage of the hamstrings tends to rotate the ischium downward and the ilium posteriorly away from the sacrum. Since this is the particular type of leverage to which the sacroiliac joints are susceptible, a sprain of the sacroiliac ligaments secondary to the disalignment of this joint may result. . . . A unilateral strain of this type is more effective than a bilateral strain and is well illustrated by the driving of a motor car. Every time the clutch is put out or the brakes applied, especially by a small person with a short reach, the hamstrings are rendered taut and a vicious leverage is applied to the sacroiliac joints. This is a very frequent cause of sacroiliac strain.

The commendable part of this section is that it is beautifully illustrated with drawings of skeletons in lateral and anteroposterior views, with the muscles schematically outlined to show clearly the mechanics involved in lifting and in other movements of the spine. There is even a diagram showing how strain may be produced by driving a car.

Under the subheading "Pain," local pain, referred pain and that due to muscle spasm are described, with appropriate diagrams of the locations of such pain.

The subheading, "Examination," is handled admirably when one considers that its writer is not trained osteopathically. Of the paragraphs on palpation, one is indeed well worth quoting.

If a patient complains of a tender spot anywhere, one's first reaction is always to put a finger on it. This is an illogical method of approach because poking a sore spot makes it sorer, creates more muscle spasm and increases the difficulties of palpation. It is distinctly better to palpate first those regions which are the least apt to give rise to pain. With this in mind one should systematically conduct palpation and do it in such a way that at all times one knows what anatomical structures are being palpated. Localized tenderness anywhere as a rule means a lesion of that particular region. This is true of the spine as well as of any other part of the body. In fact tenderness is even more significant in the case of the spine, because the structures involved are so deep seated that they rarely give rise to any visible surface changes.

Another section on "Examination" concerns tests for motion. Various methods of differentiation between lumbar and sacroiliac lesions with the patient standing, sitting and lying are described and again excellent skeletal diagrams are interspersed in the pages for illustration purposes. Osteopathic physicians would agree heartily with the following advice:

In examining the mobility of a patient's spine there is one point that should be kept in mind: No information is gained by trying to find out *how much* the patient can be hurt; a great deal of information is gained by finding out *when* pain commences. The patient, therefore, should be instructed to stop as soon as pain comes on if he is performing a motion actively; the examiner should stop if performing a passive test, such as straight leg raising or passive lumbar flexion.

Under the heading, "Treatment," there is a notable absence of any descriptive manipulative procedures for either lumbar or sacroiliac joint lesions. The author says: "Manipulative treatment is indicated only if the physicial examination yields evidence of a disaligned sacroiliac joint," but he does not describe such treatment.

More notable than any of these things which have been quoted, however, is the method of illustrating, which has already been mentioned, but which needs to be seen to be appreciated. The use of diagrams to illustrate a discussion is not new, of course, but the idea is particularly adaptable for the demonstration of osteopathic technic in an osteopathic textbook on technic (if that dream book ever does materialize). The need is urgent for a well-planned well-illustrated, well-written book describing osteopathic technic. If the present trend in the make-up of books is to be followed, such a book will be composed of a number of articles written by men prominent in manipulative osteopathy, each selected for his outstanding skill in one field of the work.

The necessity for early and outstanding action is apparent to those who see the trend in nonosteopathic books and the increasing space given therein to manipulative methods. The efforts along this line by Mennell, Fisher, Bankart, Goldthwait and a few others of the "old school," elementary as they may be at present, reveal the handwriting on the wall.

Not the least of the dangers in this connection is exemplified in one significant statement which appeared in Smith-Petersen's chapter in the first edition of Christopher and is carried over into this: *"Osteopathic treatment is on the whole consistent in these conditions and orthopedic surgeons make use of it, only under a different name."* This is characteristic of the thinking of nonosteopathic medical physicians and of the idea which they constantly try to instill into the thinking of the public, that osteopathy is nothing more than manipulative surgery—and not very good manipulative surgery at that.

Are osteopathic physicians to continue treating the sick (and, by the way, doing it more successfully than any other physicians) without putting down in black and white how they do it? There are some osteopathic textbooks which contain excellent descriptions of technic, but the technic is overshadowed by lengthy discussions of pathology, symptomatology and glittering generalities. Without a doubt there is an abundance of material on osteopathic technic available if someone only would correlate it, edit it, so that the general practitioner can understand it, and then (what never has been done) spare no pains in illustrating it adequately.

Clinically osteopathic physicians have demonstrated their usefulness in the realm of healing. For posterity and the future of osteopathy they must "put it in writing" and put it there first.

R. E. D.

Public Relations Committee

CHESTER D. SWOPE, D.O.
Chairman
Washington, D. C.

SOCIAL SECURITY TAXES

Osteopathic physicians, as employers, pay two types of Federal Social Security taxes. One type arises under Title VIII of the Social Security Act, is for old age insurance, and is payable on the wages of all employees in employments covered. The other type arises under Title IX of the Act, is for unemployment compensation, and is payable by employers of eight or more employees in employments covered.

On August 10, 1939, an Act entitled "Social Security Act Amendments of 1939" became a law, and effected certain changes in Titles VIII and IX of the Federal Social Security Act.

Title VIII will hereafter be known as the "Federal Insurance Contributions Act."

Title IX has become the "Federal Unemployment Tax Act."

FEDERAL INSURANCE CONTRIBUTIONS ACT

The old age insurance tax rates will be 1 per cent on the employee and 1 per cent on the employer for the calendar years 1940, 1941, and 1942, as against the 1½ per cent rate provided for those years under the old law. In other words, the present rate of 1 per cent continues through 1942.

Effective January 1, 1940, a new provision requires employers to furnish each of their employees a statement in a form suitable for retention by the employee showing the taxable wages paid to the employee after December 1, 1939. The statement must cover one or more, but not more than four, calendar quarters, and must show the names of the employer and the employee, the period covered by the statement, the total amount of wages paid within the period covered, and the amount of the employees' tax with respect to such wages. There is a civil penalty of not more than $5.00 for each willful failure to furnish the statement.

Effective January 1, 1940, *Wages*—In determining the amount of taxable wages (definition of "wages"), the provision limiting the tax to the first $3,000 remuneration is retained. The law excludes payments made to or on behalf of an employee under a *plan or system established by an employer* which makes provision for his employees generally, or classes of his employees (including any amount paid by an employer for insurance or annuities, or into a fund to provide for any such payment) on account of (a) retirement, or (b) sickness or accident disability, or (c) medical and hospitalization expenses in connection with sickness or accident disability, or (d) death (including life insurance), provided the employee, while living, does not have certain specified rights or options, or (e) payments by an employer (without deduction from the remuneration of, or reimbursement by, the employee) of the employee's tax imposed by the Act or employee contributions under state compensation laws.

Effective January 1, 1940. *Employment*—In defining the employments subject to the Act certain exceptions as contained in the old law are repeated or revised, and new exceptions are provided. Among the exceptions from taxation are the following: *Agricultural labor,* which is given a very broad meaning. *Domestic service,* which continues the exception of domestic service in private homes and contained in the old law, and adds the exception of such service when performed in a local college club or local chapter of a college fraternity or sorority. The exception regarding *casual labor* is unchanged. The exception of service performed by *individuals over sixty-five* has been repealed. The exception of *family employment* is new, although the old law contains such an exception in the case of unemployment compensation. Under the new law both contain the exception, which

excepts service performed by an individual in the employ of his son, daughter, or spouse, and service performed by a child under the age of twenty-one in the employ of his father or mother. *Federal and state employees,* and employees of instrumentalities wholly owned by the Federal or state governments are excepted. Employees of national banks and state banks which are members of the Federal Reserve System are no longer excepted. The exception of the employees of organizations which are organized and operated exclusively for *religious, charitable, scientific, literary,* or *educational purposes,* or for the prevention of cruelty to children or animals, no part of the earnings of which inures to the benefit of any private shareholder or individual, is continued; but a disqualifying clause is added, which is the same as that included in the Federal Income Tax Law, to the effect that the exception will not be operative if a substantial part of the activities of the organization "is carrying on propaganda, or otherwise attempting to influence legislation." Others excepted are: Employees of *nonprofit organizations* which are exempt from Federal Income Tax, if the service performed in a calendar quarter does not exceed $45, or if the service is in connection with the collection of dues or premiums for a fraternal beneficiary society, order, or association and performed away from the home office, or as ritualistic service in connection with any such society, order, or association, or if such service is performed by a student who is enrolled and is regularly attending classes of a school, college, or university; *Agricultural and horticultural* associations excepted from Federal Income Tax, without regard to the type of service rendered or the amount of remuneration received; *Voluntary employees' beneficiary associations* which are exempt from Federal Income Tax; Services performed in any calendar quarter by *students* in the employ of a school, college, or university, not exempt from Federal Income Tax, if such service is performed by a student enrolled and regularly attending classes at such school, college, or university, and the remuneration for such service does not exceed $45 (exclusive of room, board, and tuition); Services performed by *student nurses* in the employ of a hospital or a nurses' training school by individuals who are enrolled and regularly attending classes in such a school, chartered or approved pursuant to a State law, and service performed as an *interne* in the employ of a hospital by an individual who has completed a four years' course in a medical school, chartered or approved pursuant to a State law.

In cases where an employee rendered both *included* and *excluded service* for the same employer during a particular pay period (of not more than thirty-one consecutive days) if the services performed during one-half or more of the pay period are included, all the services for the entire pay period shall be included; but if the services performed during more than one-half of the pay period are not included, then none of the services for that period will be deemed included.

Officers of corporations are deemed employees.

FEDERAL UNEMPLOYMENT TAX ACT

This Act is effective with the tax for the year 1939, unless otherwise noted.

Employers are allowed credit up to ninety per cent of the Federal tax for *any* (employments) contributions they have made under state unemployment compensation laws. Heretofore, employers were allowed credit *only* for contributions made under state law with respect to employments covered in the Federal Act.

Employers are permitted to take credit under the Federal Act for state contributions made after the due date of the Federal return, if the contributions are made before the following June 30th. The credit thus allowed cannot, however, exceed ninety per cent of the Federal tax due under the Federal tax returns. Under a separate title of the law, special provision is made allowing credit against the Federal taxes for 1936, 1937, and 1938, for contributions with respect to employment paid into state funds before October 9, 1939. This grants relief to taxpayers who failed to pay timely contributions to the states with respect to employment during these calendar years.

The Commissioner of Internal Revenue may grant as much as ninety days extension of time for filing the return of Federal tax, under rules and regulations prescribed by him. The old law limited the extension to sixty days.

Effective January 1, 1940. WAGES. In determining the amount of taxable wages (definition of "wages"), only the first $3,000 paid to an individual is taxable. This limitation applied to old age insurance in the old law and is continued in the Federal Insurance Contributions Act, but there was no such limitation in the old law with respect to unemployment compensation. The provisions defining "wages" are identical with those under the Federal Insurance Contributions Act.

Effective January 1, 1940. EMPLOYMENT. The definition of employments subject to the Act is identical with that discussed under Federal Insurance Contributions Act. Likewise the provisions relating to *included* and *excluded* services over certain pay periods, and the definition of employees to include officers of corporations, are identical.

CHESTER D. SWOPE, D.O.

Department of Public Affairs

P. W. GIBSON, D.O.
Chairman
Winfield, Kans.

STATE LEGAL AND LEGISLATIVE

WALTER E. BAILEY, D.O.
Legislative Adviser in State Affairs
St. Louis

DETROIT OSTEOPATHIC HOSPITAL

The supreme court of Michigan on September 5 affirmed the action of a lower court in a suit brought in an attempt to change the by-laws of the Detroit Osteopathic Hospital, and elect a new board of directors. The decision was in favor of the present board, which, the court ruled, cannot be ousted by action of members of the hospital association.

RE-REGISTRATION OF OSTEOPATHIC LICENSES

November 1—Missouri, $2.00. Address the Secretary-Treasurer, Dr. F. C. Hopkins, 202 N. Fourth St., Hannibal.

National Board of Examiners for Osteopathic Physicians and Surgeons

W. CURTIS BRIGHAM, D.O.
President
Los Angeles

EXAMINATIONS SCHEDULED IN PARTS I AND II

The National Board of Examiners for Osteopathic Physicians and Surgeons will hold examinations in Parts I and II at each of the approved osteopathic colleges on Thursday and Friday, December 7 and 8.

Part I of the examination includes the subjects of anatomy, including histology and embryology; physiology; physiological chemistry; general pathology; bacteriology, including parasitology and immunology.

Part II of the examinations includes the subjects of surgery, including applied anatomy, surgical pathology and surgical specialties; obstetrics and gynecology; pediatrics; neuropsychiatry and therapeutics; public health, including hygiene and medical jurisprudence; osteopathic theory (principles) and practice.

Parts I and II are written examinations. Part III of the examinations is oral and is held usually at the time of the national A.O.A. convention.

The fees for the examinations to accompany the applications are $10.00 for each part.

Application blanks may be secured from the deans of any of the osteopathic colleges and from the undersigned.

ASA WILLARD, D.O., Secretary-Treasurer,
Missoula, Mont.

Department of Professional Affairs

R. McFARLANE TILLEY, D.O.
Chairman
Brooklyn, N. Y.

BUREAU OF PROFESSIONAL DEVELOPMENT

A. G. REED, D.O.
Chairman
Tulsa, Okla.

EVALUATING THERAPEUTIC EQUIPMENT

Requests both from members of the osteopathic profession and from laymen are often referred to this Bureau for decisions with respect to the merits of professional methods and professional equipment. The information desired is sincerely requested.

Relative values of various methods of procedure in treatment of human ills scarcely can be reduced to a statement of fact. A wide field is covered by manuscripts prepared by individuals who have had special training and experience in particular fields. Many of these appear in the professional journals. Perhaps there is general agreement that those of greatest value are based upon actual experience rather than a collaboration of materials gleaned from the writings of others. It is some definite item in personalized technical practice that usually offers greatest assistance.

The physician who has had rather extensive experience and at least moderate success in a given field offers the most helpful suggestions. His methods and conclusions are always at a premium as factors in developing his profession.

Therapeutic equipment has become so varied that to evaluate the relative merits or individual merits of such equipment is often an impossibility. Some of it has actual merit; much is of conjectural value. Equipment in the service of some practitioners seems to give better results than in the hands of others. No doubt a proper selection of cases accounts, in part at least, for this fact.

Occasionally an office is so thoroughly stocked with various therapeutic devices that the practice consists largely of manipulation of machines. A majority of osteopathic physicians' offices, however, have an occasional machine judiciously selected to aid in the practice of osteopathy. Machines should always be merely an adjunct to the therapy in which osteopathic physicians are well grounded. To depend a great deal on electrical or other mechanical devices is to court neglect of patients. Professional development in osteopathy is basically more substantial and more fundamental than a confused knowledge of modalities.

Occasionally a physician becomes so imbued with a questionable theory that he follows it to the exclusion of a rational osteopathic practice. The new field seems so certain, is somewhat novel, but is so definitely lucrative that he is magnetized into the one direction. The new theory or method may threaten to sweep the country. However, with time comes the evident weaknesses of the scheme and the true value of the contraption is recognized. If the physician is not too far "out on the limb," he may recover his equilibrium. We all have seen examples of this type of imbalance.

The Bureau of Professional Development is attempting to serve in every capacity possible relative to factors that pertain to the development of the profession. Limited research compels indefiniteness in finalities, naturally necessitating opinions where a complete analysis is not available.

A. G. R.

COMMITTEE ON PROFESSIONAL LIABILITY INSURANCE

JAMES O. WATSON, D.O.
Chairman
Columbus, Ohio

INSURANCE WITH LLOYD'S IS SAFE

Even though Great Britain is now engaged in war, American policyholders of Lloyd's of London need have no fear for the safety of their interests. A forty-million dollar trust fund has been created by the Underwriters at Lloyd's with the Farmers Loan and Trust Company, a division of the National City Bank of New York. This trust fund is nonrevocable during the period of war and until all liability under outstanding policies has been discharged. For a period of over 200 years and during all of the wars and catastrophes which have interfered with the operation of other businesses during that period, Lloyd's of London has not failed in its obligations to policyholders.

No such fund was created during the last great war and losses occurring in the United States were paid as usual. The establishment of this fund, which probably will be increased by premiums paid into it from American sources, is to reassure American policyholders who might otherwise be worried as to the effects of a conflict of the proportions now threatening.

Mr. Raymond Nettleship.

PUBLIC HEALTH RADIO PROGRAMS

Educational health programs approved by the Committee on Public and Professional Welfare of the A.O.A. are being broadcast over the following stations:

WAAF—920 kilocycles, Chicago, Wednesdays, 1:35 p.m., Chicago Osteopathic Society.

KFKA—880 kilocycles, Greeley, Colo., Wednesdays, 4:45 p.m., Colorado Osteopathic Association.

KIUL—1210 kilocycles, Garden City, Kans., Wednesdays, 11:00 a.m., Kansas Osteopathic Association.

WPAR—1420 kilocycles, Parkersburg, W. Va., and WBLK, 1370 kilocycles, Clarksburg, W. Va., Marietta Osteopathic Clinic.

WFBL—1360 kilocycles, Syracuse, N.Y., third Saturday of each month, 2:00 p.m., Central New York Osteopathic Society.

WTCN—1250 kilocycles, Minneapolis, Minn., every other Wednesday, 10:00 a.m., Minnesota Osteopathic Association.

WHBC—1200 kilocycles, Canton, Ohio, Wednesdays, 3:00 p.m., Stark County Osteopathic Society.

WDWS—1370 kilocycles, Champaign, Illinois, Wednesdays, 7:15 p.m., Illinois Osteopathic Association.

WOWO—1160 kilocycles, Fort Wayne, Indiana, Wednesdays, 6:15 p.m., D.S.T., Northeastern Indiana Osteopathic Association.

WWNC—570 kilocycles, Asheville, North Carolina, Mondays, 9:30 p.m., North Carolina Osteopathic Association.

KWTO—560 kilocycles, Springfield, Missouri, Saturdays, 2:00 p.m., Ozark Osteopathic Association.

WFAM—1200 kilocycles, South Bend, Indiana, third Friday of each month, St. Joseph Valley Osteopathic Association.

KDNT—Denton, Texas, Tuesdays, 9:45 a.m., North Texas Osteopathic Association.

WMFJ—1420 kilocycles, Daytona Beach, Fla., Fridays, 10:30 a.m., Volusia County Osteopathic Society.

Eye, Ear, Nose and Throat Section

THE RELATION OF DENTAL SEPSIS TO CATARACT*

W. V. GOODFELLOW, D.O.
Los Angeles, Calif.

There seems to be an impression among many physicians that the importance of dental pathology in systemic affections is greatly overestimated. The contrary, however, is true. Conditions of dental pathology, particularly infections and impactions, are being neglected by dentists and physicians alike, and this neglect accounts for many unsolved cases of illness. It is still common practice for dentists to rely upon the x-ray as a means of determining whether or not a nonvital tooth should be extracted. Under these circumstances, it should be apparent that much educational work must still be done among the members of the dental profession to make them aware of their responsibility in the matter of relieving the patient of systemic infection of dental origin. It was a great many years ago, probably twenty or more, that the University of California Dental Department reported some three thousand cases of extraction of nonvital teeth, carried out under conditions of strict antisepsis, from which cultures were made. None were found free from infection except a few that had been devitalized six months or less. Why, then, do dentists persist in "watching" nonvital teeth by frequent x-ray examination?

Attention is called again to the work of some investigators who conclude that the nonvital tooth on which the x-ray examination is negative, as a greater menace as a cause of systemic infection than a nonvital tooth with a demonstrable abscess. They explain that in the case of the latter, nature has walled off a lake of pus from which absorption is slow and in which infection is of low virulence. In the case of the nonvital tooth without such walled-off abscess, infection on escaping from the root canal finds its way almost immediately into capillaries and is carried to distant points while still virulent. The time has come for physicians and dentists to be agreed upon the desirability of the extraction of all nonvital teeth regardless of x-ray findings.

It is difficult today to find a dentist who has the temerity to destroy a dental nerve and install a root canal filling, although I understand there is an attempt being made to resurrect this dental procedure. If, then, the dentist realizes that teeth should not be devitalized, how can he reconcile any compromise with those already devitalized? It may be argued that it is difficult to prove in an individual case that devitalized teeth are the cause of systemic infections. The obscurity of the cause of a disorder should not blind us to the necessity of removing all potential causes of disease. Dental sepsis is not more easily borne by the system than many other forms of sepsis.

I have in mind a recent case of a middle-aged woman in fairly vigorous health, who suffered a decline with no apparent cause except excessive fatigue from overwork. Blood pressure became unstable, fluctuating between 150 and 220 systolic. Discomforts variously attributed to this blood pressure and possible toxemias were stiff neck, trifacial neuralgia, headache (in the vertex), leg weakness, nervousness, sleeplessness, heart symptoms and various other transient, and sometimes indefinable, miseries all constituting a picture of what used to be termed neurasthenia. In earlier life four impacted wisdom teeth had been recognized, three of which had been removed, and because of the position of the lower left, the second molar was removed to correct the impaction and the unerupted third molar was left. This was fairly well positioned in the jaw, standing vertically, capped over by the overlying bone, and the roots almost protruding from the under side of the jaw. In other words, the tooth occupied the entire vertical diameter of the jaw.

In earlier life one might consider that the effort of nature to erupt such a tooth might produce irritation to the inferior dental nerve with pain and discomfort. There should, however, be no tendency for such a tooth to erupt after one passes middle life. The x-ray did not disclose any evidence of infection. A general surgeon, examining the patient, recognized the unerupted tooth as a cause of some of the patient's symptoms. It was therefore removed, following which there was an immediate change in the patient's condition. Sleep was peaceful and prolonged; nerve tension was relaxed. Pain in the vertex, side of the face and neck was completely relieved. Blood pressure was lowered. The personality change was marked. Sufficient time has not elapsed to record the permanency of this recovery. The example, however, serves to emphasize the great importance of these minor continuing irritations to a nervous system.

The eminent orificial surgeon, Dr. Pratt, of Chicago, stressed the importance of the effect on the central nervous system of what ordinarily would be considered very trivial physical defects in the lower orifices. Those who have studied this subject realize how far-reaching is the influence of such minor pathologies. In a similar way tooth lesions, by the continuance of the irritation, produce widespread changes in the nervous system and eventually induce general nutritional and deficiency disorders. Some minor irritation about the gums may induce unequal muscular action in the bite, thus causing an unpleasant, although rarely painful, snapping or popping of the temporomandibular joint in the act of eating. One case that I recall which was quite annoying was corrected by having the teeth properly cleaned.

Let us now consider the possibilities of the situation when the element of focal sepsis is added to the picture already drawn. We have seen how dental irritation may produce discomforts, an unstable nervous system, change in blood pressure, may affect energy production—in fact, produce a neurasthenic state. Add to this state of nerve exhaustion and vitality depletion a constant source of bacterial toxins and a supply of virulent bacteria, and the stage is set for serious physical consequences. Adequate immunity requires normal cell vitality. Given such conditions, a focus of infection might be borne for a long period without serious physical defect, but if this focus of infection occurs in an organism already depleted from other causes, secondary foci may appear in most unexpected places.

Most of us are familiar with the mechanism by which a chronic focus of infection may be the cause of a carditis or arthritis, or an inflammation of any of the vital organs. I wonder how many have considered the possibility of change in the cell structure of the crystalline lens of the eye as a result of chronic focal infection. There have been many theories as to the cause of cataract. Most of them remain unproved. Recently, I had a case of incipient cataract which seems to suggest the great importance of chronic, systemic infection as a direct cause of the condition. We know that there are other causes, such as the use of dinitrophenol. We know that some cataracts are of traumatic origin, and we classify some as senile. These last may fall under the classification which I am suggesting are attributable to uncorrected foci of infection.

Male, aged 60 years, an executive, in apparently good health, noted two weeks prior to consulting me a gradual blurring of vision in the right eye. He described it as a haziness. Glasses had been changed eight months previously. He had had no recent illness and general health was good except for rheumatic pains in his back for the past two months. He had facial paralysis with

*Delivered before the E. E. N. T. Section at the Forty-Third Annual Convention of the American Osteopathic Association, Dallas, June, 1939.

impairment of movement of the right upper lid at thirteen years of age. He reported that his teeth were perfect, and had had regular and recent dental inspection. His history did not indicate any opacities such as spots, spider web formations, etc. Ophthalmoscopic examination of his eyes disclosed a haziness of each crystalline lens which made identification of fundus structure difficult. Blood pressure was 140 systolic, 85 diastolic. Hemoglobin 100 per cent. Urinalysis was normal except for granular casts one plus, pus cells few, blood cells few. Blood count: white cells, 9,700; otherwise, normal. Blood chemistry normal.

There was no inflammatory condition of the eyes and sluggish reaction of the pupils; tension was normal. I advised a refraction and x-ray examination of the teeth. The x-ray report was as follows: Upper left lateral and lower left first molar nonvital with large apical abscesses. He was advised to have these extracted immediately. Time seemed to be an element, inasmuch as the onset and progress of the opacity was rapid. Following the extraction, with no other treatment given, the opacity of each lens disappeared about as rapidly as it had occurred. Two months later the patient reported perfect vision and perfect health.

To my knowledge focal sepsis has not been considered seriously as a cause of cataract. It has, I believe, been considered one of the indirect causes. This case history suggests the possibility of focal sepsis being the only cause in certain cases, and possibly a contributing cause in a large number of cases. Considering the gravity of the condition and the urgency of correcting dental sepsis for the purpose of preventing widespread systemic disorder, it seems logical to urge that dental sepsis be ranked as most important in every case. It is, I believe, common practice for physicians to accept the patient's or a dentist's statement that no tooth pathology exists. In the light of present-day knowledge, this is bad practice. X-ray pictures should be reviewed by the physician himself first to determine whether they have been taken well enough to afford a clear diagnosis, and, second, to discover dental pathology which may be considered by the dentist too trivial to report. There should be no compromise with any type of dental pathology, even though the patient is in the best of health. The insidious undermining influence of dental pathology is inconsistent with the preservation of good health. The early detection of dental abnormalities and infection, and their correction, is good prophylaxis.

SUMMARY

1. All nonvital teeth should be extracted forthwith.
2. Dental irritation constitutes a nervous system "leak" followed by endocrine and nutritional changes which cause widespread degenerative changes.
3. Dental and other upper orifice irritations are compared with pathologies in lower orifices which have long been recognized as disturbing factors in nervous system dysfunction.
4. Adding to these degenerative changes the element of infection such as root abscesses, widespread tissue changes take place.
5. A case is cited of incipient cataract in which three abscessed teeth were drawn and opacities disappeared.
6. It is urged that early detection of dental abnormalities and infection, and their correction, is good prophylaxis.

6381 Hollywood Blvd.

It is not too early to begin thinking about and saving for that trip to **St. Louis** next summer. The forty-fourth annual convention of the American Osteopathic Association is going to take place there. It promises to be bigger and better than ever. You will not want to miss it.

Current Osteopathic Literature

Abstracted by R. E. Duffell, D.O.

JOURNAL OF OSTEOPATHY
KIRKSVILLE, MO.

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Editorial: Food for Thought—p. 10.
Osteopathy Unadulterated. Arthur G. Hildreth, D.O., Macon, Mo.—p. 11.
Foot Technic—Illustrated. Allan A. Eggleston, D.O., Montreal, Quebec—p. 14.
Sitting on Your Foot. Wallace M. Pearson, B.Sc., D.O., Kirksville, Mo.—p. 18.
Strictly Manipulative: A Case of Low Back Disability. J. S. Denslow, D.O., Kirksville, Mo.—p. 20.

46: No. 8 (August), 1939

Editorials: Student Recruiting and Advanced Standards. The Dallas Convention. Two Young Doctors. The Sparks Hospital. George M. Laughlin, D.O., Kirksville, Mo.—p. 9.
A Requirement for Osteopathic Growth: The Place of Student Recruiting in the General Program of Osteopathic Development. H. G. Swanson, M.A., D.O., Kirksville, Mo.—p. 12.
Advice from a Layman. Ethel Conner, Kirksville, Mo.—p. 14.
Summation, Induction, Facilitation and Canalization Osteopathically Applied. Wallace M. Pearson, A.B., B.Sc., D.O., Kirksville, Mo.—p. 15.
Sinuitis, Its Cause and Treatment A. C. Hardy, M.D., D.O., Kirksville, Mo.—p. 19.
*Strictly Manipulative: A Discussion of the Hypertonus of Striated Muscle Which Is Always Present in Cases of Asthma. J. S. Denslow, D.O., Kirksville, Mo.—p. 22.

***A Discussion of the Hypertonus of Striated Muscle Which Is Always Present in Cases of Asthma.**—Denslow describes a technic for overcoming asthmatic attacks. This technic is based upon the fact that during an attack of asthma the muscles attached to the thoracic spine and ribs are hypertonic. This hypertonus is part of a vicious cycle which in most cases originates as a result of a slight deviation from normal of the position or motion of one or more thoracic vertebrae. A "muscle back to muscle reflex" is set up—"the muscles, hypertonic because of the articular irritation . . . places abnormal pressure on its own proprioceptive receptors and, equally important, tends to splint the already pathological adjacent joints."

Treatment is directed, first, to applying deep, sustained pressure (so-called inhibition) to the hypertonic muscles along the spine until they relax; and, second, to correcting the articular lesions found. Well controlled, sometimes sharply applied forces must be applied to the involved vertebrae and ribs.

CLINICAL OSTEOPATHY
LOS ANGELES

35: No. 7 (July), 1939

The Spleen and Its Affections. J. Willoughby Howe, D.O., Los Angeles.—p. 377.
Lymphatic Diathesis—Some Significant Features. Pauline L. Harris, D.O., San Marino.—p. 385.
Acute Rheumatic Fever. Joseph A. Blake, D.O., Glendale.—p. 391.
Cretinism and Mongolism. Roy D. Rifenbark, D.O., Los Angeles.—p. 396.
Two Cases of Otogenic Pneumococcic Meningitis Successfully Treated With Sulfapyridin. Mary H. O'Meara, D.O., Temple City, Calif.—p. 400.
Etiology of Enuresis. Louise E. Ury, D.O., Los Angeles.—p. 408.
The "Helping Hand" of the Nursery School Mabel C. Grumby, Ass't. Prof. of Education, San Jose State College.—p. 412.

35: No. 8 (August), 1939

Gonorrheal Infection in the Female. Harriet L. Connor, D.O., Los Angeles.—p. 433.
Better Procedures in the Conduct of Labor. Wayne Dooley, D.O., Los Angeles.—p. 445.
Evaluation of the Newer Anesthetics. J. Lynn Goode, D.O., Los Angeles.—p. 451.
Recent Advances in the Treatment of Gastric Ulcer. James L. Conley, D.O., Los Angeles.—p. 459.
Cathartics: Their Use in General Practice. Homer O. Zumwalt, Ph.G., M.S., D.O., Los Angeles.—p. 464.
*The Importance of Faulty Structural Relations in Ovarian Dysfunction. Roger C. Daniels, C.O.P.S. '40.—p. 470.

***The Importance of Faulty Structural Relations in Ovarian Dysfunction.**—Daniels has drawn upon both osteopathic and nonosteopathic literature for the support of his contention that faults in body mechanics constitute important causative agents in ovarian dysfunction. In a short review of the physiology and anatomy of the

ovary, he calls attention to the fact that "nerves produce their effects on the ovary largely through their action on the blood vessels." Osteopathic joint lesions [a form of faulty body mechanics] of the ninth, tenth or eleventh thoracic vertebrae affect nerves in this region, which in turn alter the caliber of the blood vessels, resulting in inadequate supply of blood to the ovarian tissue and a slowing down of the removal of metabolic products from ovarian tissue. Lesions of the atlanto-occipital joint also may affect ovarian function by disturbing the blood supply and drainage to the pituitary body, which supplies important hormones.

Another source of irritation to the ovaries arises from displacement downward and crowding of these organs with others in the lower part of the pelvis—this resulting from a lack of support afforded by a flattened lumbar region or a less than normal lumbar curve. Normally, "the depth of the lumbar curve is such that the anterior aspect of the fourth and fifth lumbar vertebrae is nearer to the anterior surface of the body than to the posterior surface. . . . The shelf-like arrangement in the support of the abdominal cavity which normally gives adequate support to these organs is of great importance." In addition disturbances of the articulations of the lower thoracic and lumbar vertebrae, or the sacrum and ilii, producing imbalance of those parts and muscular strain, should accordingly disrupt the supportive mechanism and alter the positions of the pelvic organs. "Likewise, the nerve impulses arising in these segments and passing to the ovary would affect its circulation, either directly or by reflexly producing tension in the psoas major, on which the ovarian artery rests."

The work of Burns, who demonstrated that the female progeny of lesioned parents [in animals] show some developmental defect of the uterus and ovaries, is cited by the author.

Five case histories are given to illustrate the relationship between altered body mechanics and the production of ovarian and uterine dysfunction.

Current Medical Literature

Abstracted by R. E. Duffell, D.O.

The Treatment of Spinal Root Pain

William Bates, M.D., and Bernard Judovich, M.D., writing in *Clinical Medicine and Surgery* for May, 1939, say that the recognition and correction of postural defects constitute an important sphere in the treatment of spinal root pain. "These defects may be of minor degree, and yet be responsible for the long duration of the pain found in . . . cases of parietal neuralgia. A difference of leg length of ⅛ of an inch and upward may be the cause of chronic pain, or of acute attacks brought on by a focal infection plus this factor. Shortening of an extremity causes a compensatory scoliosis, which may be regarded as chronic trauma."

The authors further say that "It is our belief that lumbodorsal sprain, with first-lumbar neuralgia, is the most common type of back sprain; that, as such, it is not generally recognized; and that a thorough understanding of this condition would do much to eliminate many cases of so-called sacroiliac and lumbosacral strain and malingering, and facilitate proper treatment."

In addition to postural correction the authors prescribe exercises for patients suffering with parietal neuralgia. For rapid relief of pain, until other treatment can be started, they use paravertebral nerve injections of such substances as Sarapin (an extract of pitcher plant), novocain solution or dilute alcohol.

Conservatism in Fusing Operations

G. W. N. Eggers, M.D., writing in *The American Journal of Surgery for* December, 1938, maintains that if one must err in the treatment of back conditions, it should be on the side of allowing too much bed rest and doing fewer fusions, especially in traumatic cases. He lists the principal etiologic factors of back pain, which include congenital deformities, mechanical instability (variation of leg length, scoliosis and associated lesions, foot disorders, posture, nerve root pressure by bony structures), infections, tumors, metabolic conditions, traumatism, referred pain of visceral origin, and comments that out of this list very few call for fusion operations. He says, "Many of these, in fact most of them, would not respond to fusion. Those cases which respond to rest, recur on activity and again respond to rest, probably present the best prognosis, for this chain of events indicates a mechanical irritating factor relieved by rest, and fusion is a means of resting or immobilizing the affected part."

Numerous cases are given to illustrate the natural forces which bring about fusion when fusion is necessary. Observance of the physiologic reactions in these cases should provide the formula for improving the surgical approach. Before a patient is declared eligible for spinal fusion, he should receive careful investigation and an accurate diagnosis. "When he finally arrives on the threshold of spinal fusion, his age should be a determining factor; for the young and the old fusion operations are not preferable. The group of available patients, therefore, grows smaller and smaller until the number qualifying for this procedure is very small—insignificant as compared to the persons presenting themselves with backache."

Book Notices

A TEXTBOOK OF SURGERY. By American Authors. Second Edition. Edited by Frederick Christopher, B.S., M.D., F.A.C.S. Cloth. Pp. 1695, with 1381 illustrations. Price, $10.00. W. B Saunders Company, West Washington Square, Philadelphia, 1939.

The first edition of this book was reviewed to the extent of nearly a page in the July, 1936, JOURNAL OF THE AMERICAN OSTEOPATHIC ASSOCIATION by George J. Conley, D.O. One hundred and eighty-four surgeons have contributed their individual monographs to this fine book which covers every field of surgery including the basic sciences necessary to a good understanding of practice. This edition contains new sections on cancer of the lip and tongue, and on congenital obstruction of the bile duct, and on duplications of the alimentary tract, on tetanus, and on lymphogranuloma inguinale.

The chapter on "Painful Affections of the Lower Back" is reviewed in detail in an editorial on page 136 of this current issue of THE JOURNAL.

R. E. D.

(Book Notices continued on page 23)

State Boards

District of Columbia

The next examinations before the Board of Examiners in the Basic Sciences will be held beginning October 23, for two days.

The next examinations before the Board of Examiners in Medicine and Osteopathy will be held beginning November 13. All applications must be in the hands of the Secretary-Treasurer of the Commission on Licensure not later than October 1. For further information address George C. Ruhland, M.D., Secretary-Treasurer, Commission on Licensure, Room 203, District Building, Washington, D.C.

Illinois

The next examinations will be held on October 17, 18 and 19 at Chicago. For further information, address Oliver C. Foreman, 58 E. Washington St., Chicago.

Iowa

The Iowa Board of Examiners in the Basic Sciences will conduct a written examination at the State Capitol Building, Des Moines, on October 10 at 9:00 a.m. Address Ben H. Peterson, Ph.D., Secretary, Coe College, Cedar Rapids.

Massachusetts

Frank M. Vaughan, Boston, recently was appointed to the Board for a seven year term. He is taking the place of Mark Shrum, Lynn.

Michigan

The following officers were elected on September 5: President, Harry Schaffer, Detroit; vice president, R. A. Northway, Mt. Pleasant; secretary-treasurer, F. Hoyt Taylor, Lansing, reelected. Other members of the board are John P. Wood, Birmingham and C. Burton Stevens, Detroit.

New York

Harold L. Rypins, M.D., Secretary of the State Board of Medical Examiners died on August 25.

South Carolina

The next examinations will be held on November 21 and 22 at Columbia. Applications, with fee, must be filed not later than fifteen days prior to date of examinations. For application blanks and other information address M. Vermelle Huggins, Secretary-Treasurer, Carolina Life Bldg., Columbia.

South Dakota

F. E. Buckholder, Sioux Falls, recently was appointed to the Basic Science Board.

West Virginia

The next examinations will be held on February 12 and 13, 1940, at Harwood James' offices in the New Lilly Building, Beckley. Applications must be filed not later than February 1, 1940. Application blanks may be secured from the Secretary, Guy E. Morris, 542 Empire Bldg., Clarksburg.

Conventions and Meetings

Announcements

American Osteopathic Association, Forty-Fourth Annual Convention, St. Louis, June 24-28, 1940. Program chairman, C. Haddon Soden, Philadelphia.

American College of Osteopathic Surgeons, Biltmore Hotel, Los Angeles, October 1-5. Program chairman, Edward B. Jones, Los Angeles.

California state convention, Mission Inn, Riverside, March 28-30, 1940.

Delaware state convention, Wilmington, October 2.

Florida state convention, Hotel Marion, Ocala, May, 1940.

Georgia state convention, Waycross, May, 1940. Program chairman, W. O. Holloway, Thomasville.

Idaho midyear convention, November. Program chairman, Earl Warner, Caldwell.

Indiana state convention, Fort Wayne, October 18, 19. Program chairman, J. E. Carter, Fort Wayne.

Kansas state convention, Hotel Allis, Wichita, October 9-11. Program chairman, James B. Donley, Kingman.

Kentucky state convention, Louisville, October 26, 27. Program chairman, C. R. Blackburn, Henderson.

Louisiana state convention, New Orleans, October 28, 29. Program chairman, W. L. Stewart, Alexandria.

Maryland state convention, Baltimore, October 1.

Michigan state convention, Book-Cadillac Hotel, Detroit, October 24-26. Program chairman, Sherwood J. Nye, Pontiac.

Minnesota fall convention, St. Cloud, October 6, 7. Program chairman, Harold E. Kerr, St. Cloud.

Missouri state convention, The Elms, Excelsior Springs, October 30, 31, and November 1. Program chairman, H. G. Swanson, Kirksville.

Montana state convention, Lewistown, 1940. Program chairman, Jack E. Cox, Lewistown.

New York state convention and special refresher course, Hotel Pennsylvania, New York City, October 6-10. Program chairman, Edward H. Gibbs, New York City.

North Carolina state convention, Charlotte, May, 1940. Program chairman, Arthur M. Dye, Charlotte.

Ohio state convention, Hotel Cleveland, Cleveland, 1940. Program chairman, D. V. Hampton, Cleveland.

Oklahoma state convention, Mayo Hotel, Tulsa, October 4-6. Program chairman, C. P. Harth, Tulsa.

Ontario Academy of Osteopathy, Chateau Laurier Hotel, Ottawa, November. Program chairman, Ray A. Linnen, Ottawa.

Oregon state convention, Salem, 1940. Program chairman, W. E. Hinds, Hillsboro.

South Carolina state convention, Columbia, May, 1940. Program chairman, Nancy A. Hoselton, Columbia.

Tennessee state convention, Memphis, October 22 to 24. Program chairman, Walter Baker, Memphis.

Texas midyear convention, Amarillo, October 16, 17. Program chairman, Roy Russell, Fort Worth. Annual convention, Corpus Christi, Spring, 1940. Program chairman, James M. Tyree, Corpus Christi.

Vermont state convention, Burlington, October 4, 5. Program chairman, Thomas P. Dunleavy, Barre.

West Virginia state convention, Bluefield, May 19-21, 1940. Program chairman, W. H. Carr, Bluefield.

Wisconsin state fall convention, Hotel Whiting, Stevens Point, October 5.

Wyoming state convention, Riverton, May, 1940.

OFFICIAL AND AFFILIATED ORGANIZATIONS

ARIZONA

State Association

The officers were reported in the August JOURNAL. The following committee chairmen have been appointed: Membership, public health and education, convention program, Carleton E. Towne, Tucson; hospitals and clinics, Philip F. Hartman, Mesa; censorship, L. A. Perino, Miami; student recruiting, John P. Munro, Winslow; industrial and institutional service, A. B. Stoner, Phoenix; publicity, David L. Conner, Phoenix; statistics, Earl I. Agnew, Tucson; convention arrangements, Victor Kilcrease, Casa Grande; legislation, Charles C. Bradbury, Phoenix.

CALIFORNIA

Alameda County Osteopathic Society

At Oakland, August 25, Amy Ziegler, Los Angeles, explained the purpose of the Nutrition and Deficiency Forum; Emory Thurston, Los Angeles, discussed "Proprietary Preparations on the Market;" Professor H. McWilliams, Los Angeles, spoke on "Minerals, Vitamins and Hormones;" and Glenn Axtell, Oakland, "The Use of Sodium Chloride in Adrenal Insufficiency." Dean O'Neil, Oakland, read Wilkie Hamlin's paper on "Vitamin B in Diabetes Mellitus."

East Bay Osteopathic Physicians' Luncheon Club

On August 8, Bert Tardieu, Oakland, was the principal speaker.

On August 15, Charles F. Reed, Haverhill, Mass., was the guest speaker. P. K. Theobald, Oakland, presented case histories.

The following officers were elected: President, Lorna Williams; vice president, Gertrude Smith, both of Alameda, and secretary-treasurer, Jacquelin Bryson, Oakland.

On August 22, Wesley Carey, Oakland, was the principal speaker.

Pasadena Osteopathic Society

Some of the committee chairmen were reported in THE JOURNAL for September. The following additional chairmen have been appointed: Clinics, William H. Coke; publicity, Arthur O. Dudley; statistics, William F. Neugebauer, all of Pasadena.

COLORADO

Cortex Club

The following meetings were scheduled to be conducted: September 11—M. M. Ruffo, "Constitutional Anomalies;" September 18—N. E. Atterberry, "My Knowledge of Knees;" September 25—R. A. Cluff, "Clinical Diagnosis." All are from Denver.

IDAHO

Boise Valley Osteopathic Association

The following officers were elected on June 22 at Emmett: President, A. G. Bowbrick, Emmett; vice president, C. R. Whittenberger, Caldwell; secretary-treasurer, O. R. Meredith, Nampa. The following committee chairmen have been appointed: Membership, Harriet Sears, Ontario, Ore.; professional education, Sol W. Catron, Payette; hospitals and public health and education, E. O. Bauman, Boise; censorship and convention program, Earl Warner, Caldwell; student recruiting, H. B. Catron, Payette; industrial and institutional service, J. H. Bodle, Boise; clinics, C. L. Heuck, Nampa; publicity, F. H. Thurston, Boise; statistics, D. W. Hughes, Boise; social program, Dr. Whittenberger; convention arrangements, Anna Pritchett, Vale, Ore.; legislation, L. D. Anderson, Boise; professional development and displays at fairs and expositions, H. V. Heimburger, Parma; convention social, Dr. Whittenberger.

ILLINOIS

State Association

The officers were reported in the June JOURNAL. The following committee chairmen have been appointed: Hospitals and clinics, Charles E. Medaris, Rockford; displays at fairs, Pauline R. Mantle, Springfield; censorship, John F. Peck, Kankakee; industrial and institutional service, H. F. Garfield, Danville; membership, Roe H. Downing, Quincy; public health and education, R. N. MacBain, Chicago; public relations, H. Willard Brown, Springfield; statistics, Fred B. Shain, Chicago; student recruiting, C. E. Cryer, El Paso; convention arrangements, D. B. Heffelfinger, and convention program, S. V. Robuck, both of Chicago.

Chicago Osteopathic Association

At a meeting held on September 7, Prof. N. Goswami, of the Goswami Institute, Santipur, Bengal, spoke on and demonstrated "External and Internal Muscle Control and Tone." N. J. Larson, Chicago, demonstrated osteopathic technic.

Chicago—South Side Osteopathic Physicians' Society

Meetings were held September 14 and 21, at which round table discussions were conducted.

Chicago West Suburban Osteopathy Society

A meeting was held on September 16 at La Grange, at which William J. Locs, Chicago, spoke on "Laboratory Diagnosis in General Practice."

INDIANA

State Association

The forty-first annual convention will be held at the Hotel Anthony in Fort Wayne, October 18-19. J. Donald Sheets, Detroit, Mich., is to speak on "The Diagnosis and Treatment of Gastric and Duodenal Ulcers," "The Diagnosis of Genitourinary Pathology," and "Treatment of Prostatic Hypertrophy," and H. E. Clybourne, Columbus, Ohio, on the treatment of the feet.

KENTUCKY

State Association

The thirty-fourth annual convention is scheduled to be held at the Brown Hotel in Louisville, October 26-27. Following is the program: October 26—Robert L. Whipple, Owensboro, "The Success of Our Trip to Osteopathic Colleges;" Mr. James T. Duke, state compensation officer, "How to Collect Fees in Government Compensation;" Earl Laughlin, Kirksville, Mo., "Surgical Diagnosis of Acute Conditions of the Abdomen;" W. A. Schwab, Chicago, Ill., "The Trick in Cervical Lesion Diagnosis," and "Avoiding Routine in Manipulative Treatment;" Dr. Laughlin, "Fractures" and "Differential Diagnosis in Thyroid Disease."

October 27—Dr. Schwab, "The Dorsal Area—Three Divisions," and "The Dorsal Area—Three Technic Methods;" "Actual Short Leg—Its Cause and Diagnosis;" "Actual Short Leg—Its Symptom Production and Treatment," and "Osteopathy;" Dr. Laughlin, "Urology in General Practice."

LOUISIANA

State Society

The annual convention is scheduled to be held October 28, 29 at New Orleans. The following are the scheduled speakers with their subjects:

October 28—L. M. Farquharson, Houston, "Thyroid Dysfunction;" J. Miller Forcade, De Ridder, "Occipito-Atlantal Articula-

tion," illustrated by film, discussion and demonstration; Henry Tete, New Orleans, "Vitamins E and F in Osteopathic Practice;" C. L. Farquharson, Houston, Texas, "Structural Abnormalities of the Low Back."

October 29—C. L. Farquharson, "Ulcerative Colitis;" J. R. Kidwell, Baton Rouge, "Review of the Workmen's Compensation Law of Louisiana;" L. M. Farquharson, "Demonstrable Value of Manipulative Therapy," and "Angina Pectoris."

MAINE

State Association

The officers were reported in the July JOURNAL. The following committee chairmen have been appointed: Membership, Wallis L. Bursey, Farmington; professional education, H. E. Patterson, Guilford; hospitals, Myron G. Ladd, Portland; censorship and legislation, A. E. Chittenden, Auburn; student recruiting, Roswell Bates, Orono; public health and education, Richard Pfeiffer, Kennebunk Port; industrial and institutional service, William Lum, Augusta; clinics, Lester Lovell, Corinna; publicity, Lloyd Morey, Millinocket; statistics, Burleigh Larlee, Old Town; convention program, H. J. Pettapiece, Camden; convention arrangements and displays at fairs and expositions, M. Carman Pettapiece, Portland; professional development, Walter B. Roben, Houlton.

Northern Maine Osteopathic Association

This society was formed August 6 at Presque Isle, and the following officers were elected: President, L. T. Rogers, Fort Fairfield; vice president, W. S. Unger, Presque Isle; secretary-treasurer, W. B. Roben, Houlton. The group includes all osteopathic doctors in Northern and Central Maine who do not belong to other groups.

MICHIGAN

Eastern Michigan Osteopathic Association

At a recent meeting the Thumb Association of Physicians and Surgeons of Osteopathic Medicine became the Eastern Michigan Osteopathic Association. At a meeting held July 20 the following officers were elected: President, John V. Wilkes, Port Huron; vice president, E. N. McIntosh, Richmond; secretary-treasurer, Robert H. McDowell, Harbor Beach, reelected.

Kalamazoo Osteopathic Society

A meeting was held September 6 at which K. E. Marshall reviewed and demonstrated the technic in an article written by J. S. Denslow, "A Discussion of Temporomandibular Joint Pathology and a Suggested Program for Tic Doulourеux." (JOURNAL A.O.A., Jan., 1939.)

Thumb Association of Physicians and Surgeons of Osteopathic Medicine

(See Eastern Michigan Osteopathic Association)

MINNESOTA

Minneapolis Osteopathic Society

A picnic was held recently at the summer home of Arthur E. Allen at Navarre, Lake Minnetonka. A. F. Hulting, Minneapolis, described his recent trip to Sweden.

MISSOURI

St. Louis Osteopathic Association

A meeting was held September 19 with R. C. McCaughan, Executive Secretary of the A.O.A., and Clayton N. Clark, A.O.A. Business Manager, both of Chicago, as guest speakers.

Southeast Missouri Osteopathic Association

A meeting was held on September 10 at Cape Girardeau, at which the following officers were elected: President, H. E. Reuber, Sikeston; vice president, F. F. Priest, Poplar Bluff; secretary-treasurer, I. A. Gerdes, Charleston. The diagnosis and treatment of cardiac diseases was illustrated with motion pictures by M. M. Fuller, Cape Girardeau.

West Central Missouri Osteopathic Association

A regular monthly meeting was held at Bennett Springs, August 24.

NEW HAMPSHIRE

State Society

The officers were reported in the August JOURNAL. The following committee chairmen have been appointed: Membership, Eva W. Magoon, Troy; professional education and student recruiting, Marion G. Caldwell, Dover; censorship and publicity, Ralph G. Beverly, Keene; convention program and arrangements, C. S. Garran, Rochester, Osmond R. Strong, Concord, and Dr. Beverly; legislation, Dr. Strong.

NEW JERSEY

State Association

The 38th semi-annual convention was held September 15-17 at Atlantic City. Among those who were to speak were Wallace M. Pearson, Kirksville, Mo.; R. R. Sermon, Raleigh, N. C.; Matthew C. Pearce, D.D.S., Newark; Francis Finnerty, Montclair; Walter Evans, Philadelphia, and A.O.A. President Frank F. Jones, Macon, Ga.

Atlantic-Cape May Osteopathic Society

The officers were reported in the August JOURNAL. The following committee chairmen have been appointed: Censorship, Kirk L. Hilliard, Pleasantville; clinics, Robert Bastian; publicity, J. S. Logue; convention arrangements, Carl J. Isman, all three of Atlantic City; legislation, Charles A. Furey, Wildwood.

NEW MEXICO

State Association

The following officers were elected at Roswell on September 16: President, J. L. Cornelius, Grants; vice president, H. T. Willoughby, Hagerman; secretary-treasurer, L. M. Pearsall, Albuquerque. The speakers at the meeting were H. E. Donovan, Roswell, Lester J. Vick, Amarillo, Tex., and Drs. Pearsall and Willoughby.

NEW YORK

Osteopathic Society of the City of New York

A meeting was scheduled to be held on September 23. A symposium on "The Business of a Profession," was planned with the following speakers: Thomas R. Thorburn, "The Business Side of Practice;" Robert Sacks, "The Importance of Complete Case Histories;" Theodore J. Berger, "Your Professional Personality;" Arvid E. Valdane, "How Not to Conduct Your Practice;" William O. Kingsbury, "Insuring Your Practice." Donald B. Thorburn was scheduled to report on "The Regulations of the 1939 New York State Osteopathic Law," and Schuyler C. Matthews to conduct a technic session on the cervical area. All are from New York City except Dr. Berger, of Nutley, N. J.

The October meeting is to be held on the 21st. A symposium on "Diagnosis of Heart Disease" is to be presented.

OHIO

Athens and Hocking Counties Society of Osteopathic Physicians and Surgeons

A meeting was held August 24 at Nelsonville. Charles F. Rauch, Logan, described his 10,000 mile trip covering Mexico, the west coast, and Canada. A meeting was scheduled to be held at Athens, September 28.

Third (Akron) District Osteopathic Society

A meeting was scheduled to be held September 13, with Robert E. Truhlar, Cleveland, speaking on "The Short Leg." The talk was to be demonstrated clinically and with x-ray.

Seventh (Marietta) District Osteopathic Society

The September meeting was scheduled to be held on the 7th at Zanesville.

SOUTH DAKOTA

State Association

C. C. Pascale, Centerville, is now president, taking the place of W. L. Huetson, who has moved to California.

TENNESSEE

West Tennessee Osteopathic Association

At a meeting at Trenton on Aug. 20 the following officers were elected: President, M. E. Coy, Jackson; vice president, J. A. Moore, Dyersburg; secretary-treasurer, W. L. Baker, Memphis, reelected. The following committee chairmen have been appointed: Membership, H. F. Bower, Union City; censorship, C. L. Baker, Memphis; public health and education and statistics, W. L. Baker, Memphis; industrial and institutional service, Dr. Moore; publicity, H. M. Eckerson, Memphis; convention program, L. D. Chesemore, Paris; legislation, T. O. Lashlee, Humboldt; and professional development, F. H. Butin, Memphis.

Dr. Chesemore discussed the recent postgraduate course at Denver Osteopathic Clinic; Dr. Coy presented case reports, and Dr. Butin discussed osteopathic treatment of cardiac lesions.

A meeting is scheduled in October at Union City.

VERMONT

State Association

At the thirty-fourth annual convention in Burlington October 4 and 5 the following spoke:

October 4—R. W. Teague, Moorestown, N. J., "Urological Problems in Private Practice," "Intravenous Technic," and "Urological Office Procedures," (motion picture film); Dale S. Atwood, St. Johnsbury, "Overcorrection."

October 5—H. D. McClure, Kirksville, Mo., "Diseases of the Nervous System," and A.O.A. President Frank F. Jones, Macon, Ga., "Problems of Vital Importance to the Profession."

WASHINGTON

Yakima Valley Osteopathic Society

A meeting was held on July 27. E. W. Pruett, and C. W. Roehr, both of Seattle, showed and discussed four motion pictures on obstetric pathology.

WISCONSIN

State Association

The following program will be presented at the mid-year meeting to be held October 5 at Hotel Whiting, Stevens Point: "Spinal Fractures," F. E. Hecker, Milwaukee; "Denver Polyclinic Postgraduate Course," J. J. McCormack, Sheboygan; "Therapeutic Planning," John M. Woods, Des Moines, Iowa; "Disturbances of the Heart," W. B. Damm, Milwaukee; and "Osteopathic Armamentarium," Dr. Woods.

The officers were reported in THE JOURNAL for June. The following committee chairmen have been appointed: Department of professional affairs, P. R. Koogler, Hustisford; industrial and institutional service, Dr. McCormack; hospitals and clinics, J. B. Baldi, Milwaukee; department of public affairs, M. G. Ellinger, Milwaukee; public relations, Paul Atterberry, Milwaukee; vocational guidance, L. H. Noordhoff, Oshkosh; department of association affairs, J. R. Jackson, Milwaukee; statistics, K. W. Shipman, Evansville; censorship, E. O. Murphy, Eau Claire; department of district affairs, C. C. Hitchcock, Milwaukee; membership, Helen Calmes, Appleton; legislation, W. B. Truax, Milwaukee.

Fox River Valley District Society of Osteopathic Physicians and Surgeons

An annual picnic was held at Peninsula State Park, Sturgeon Bay, on August 13.

SPECIAL AND SPECIALTY GROUPS

Middle Atlantic States Osteopathic Association

The twentieth annual convention was held at Hotel Roanoke, Roanoke, Va., August 29 and 30. The following officers were elected: President, B. D. Turman, Richmond, Va.; vice president, T. M. Rowlett, Concord, N. Car.; secretary-treasurer, Frank R. Heine, Greensboro, N. Car.

Southeastern Osteopathic Society of Proctology

The annual meeting is to be held at the Biltmore Hotel, Atlanta, Ga., October 13 and 14. It is to be a two-day clinical session.

What's New with the Advertisers

HALL OF MAN—NEW YORK WORLD'S FAIR

Since the opening of the World's Fair in May, the Hall of Man in the Medicine and Public Health building has proved, by its large attendance and interest, to be one of the most popular exhibits at the Fair. Located directly opposite the helicline of the Trylon and Perisphere, the Hall of Man contains a number of exhibits acquainting the layman with the functions of his body. These exhibits are sponsored by the Oberlaender Trust, the Carnegie Corporation and eight prominent insurance companies.

Facing the main entrance and occupying one whole wall is a giant mural of the world, depicting the importance of man. The huge figure of a man looms over a panorama of the sun, moon, earth, clouds, mountains and water.

The building's interior is comprised of two main sections: the Hall of Man and the Hall of Medical Science. In addition there is an auditorium for scientific meetings and a Professional Club. In the Hall of Medical Science there are educational exhibits on the heart, glands, pneumonia, allergy, syphilis, diabetes, tuberculosis, cancer, anesthesia, and others which are sponsored by leading pharmaceutical companies and associations connected with preventive medicine.

The Blood Pressure exhibit in the Hall of Man, sponsored by the W. A. Baum Co., 460 W. 34th St., New York, in the interest of periodic health examinations, is built around the theme, "The Ounce of Prevention—a Health Examination." Blood pressure is dramatized with the largest manometer in the world, 19 feet in height with "mercury" oscillating between 120 and 160 mm. at the rate of 72 times a minute, in synchronism with the heart beat of the giant man on the opposite wall. Alongside this is a three-plane photo mural showing a doctor taking a patient's blood pressure with an actual 300 model Baumanometer with copy in four lighted panels emphasizing the importance of frequent physical examinations.

When you go to the World's Fair be sure to put the Hall of Man and Hall of Medical Science on your "must see" list.

IN HEAD COLDS

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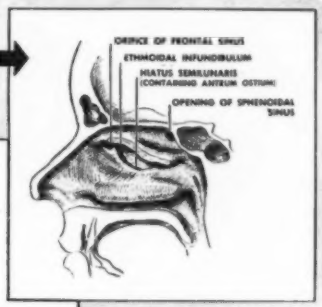

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Books Received

PHYSIOTHERAPY IN MEDICAL PRACTICE. By Hugh Morris, M.D., D.M.R.E. Cloth. Pp. 276, with 102 illustrations. Price, $4.50. Williams and Wilkins Company, Mt. Royal and Guilford Avenues, Baltimore, 1939.

INDIA RUBBER MAN: THE STORY OF CHARLES GOODYEAR. By Ralph F. Wolf. Cloth. Pp. 291, with 12 illustrations. Price, $3.00. The Caxton Printers, Ltd., Caldwell, Idaho, 1939.

THE NEW INTERNATIONAL CLINICS. Volume III, New Series 2. Edited by George Morris Piersol, M.D. Cloth. Pp. 332, with illustrations. Price, $12.00 a year for four issues. J. B. Lippincott Co., East Washington Square, Philadelphia, September, 1939.

TEXTBOOK OF MEDICAL TREATMENT. By Various Authors. Edited by D. M. Dunlop, B.A. (Oxon.), M.D., F.R.C.P. (Edin.); L. S. P. Davidson, B.A. (Camb.), M.D., F.R.C.P. (Edin.), M.R.C.P. (Lond.); J. W. McNee, D.S.O., D.Sc., M.D. (Glas.), F.R.C.P. (Lond.). Cloth. Pp. 1127. Price, $8.00. The Williams and Wilkins Company, Mt. Royal and Guilford Avenues, Baltimore, 1939.

THUS WE ARE MEN. By Sir Walter Langdon-Brown, M.A., M.D. Cantab, Hon. LL.D. (Dalhousie & N.U.I.), Hon. D.Sc. (Oxon.), F.R.C.P. Cloth. Pp. 344. Price, $3.50. Longmans, Green and Company, 114 Fifth Avenue, New York City, 1939.

CLINICAL DIAGNOSIS BY LABORATORY METHODS: A Working Manual of Clinical Pathology. Ninth Edition. By James Campbell Todd, Ph.B., M.D., and Arthur Hawley Sanford, A.M., M.D. Cloth. Pp. 841, with 368 illustrations. Price, $6.00. W. B. Saunders Company, West Washington Square, Philadelphia, 1939.

ANATOMY AND PHYSIOLOGY. By Frederic Theodore Jung, B.S., Ph.D., M.D.; Anna Ruth Benjamin, B.A., M.D., and Elizabeth Carpenter Earle, B.A., R.N. Cloth. Pp. 637, with 342 illustrations. Price, $3.50. F. A. Davis Company, 1914-16 Cherry Street, Philadelphia, 1939.

PRACTICAL OBSTETRICS. Third Edition. By P. Brooke Bland, M.D., and Thaddeus L. Montgomery, M.D. Cloth. Pp. 877, with 502 illustrations. Price, $8.00. F. A. Davis Company, 1914-16 Cherry Street, Philadelphia, 1939.

Book Notices

(Continued from page 142)

THUS WE ARE MEN. By Sir Walter Langdon-Brown, M.A., M.D., (Cantab), Hon. LL.D. (Dalhousie & N.U.I.), Hon. D.Sc. (Oxon), F.R.C.P. Cloth. Pp. 344. Price, $3.50. Longmans, Green and Company, 114 Fifth Avenue, New York City, 1939.

This is an interesting series of addresses and essays by an outstanding man of letters in the present-day field of medicine. Although they

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were not prepared with any view to their use as a connected series they do have a certain unity. Langdon-Brown looks not only at the individual and not only at the profession, but also at the nation and at humanity as a whole. The theme set out in his first essay is that many of our present distresses, individual and social, are due to the difficulty of taking the next step demanded by evolution—an enlargement of the unit in such a way as to combine co-operation with individual liberty. It is a psychological step and to take it we have to learn more of the ways our minds work and realize what impulsive, unreasonable creatures we really are.

Another interesting point of the many which should be quoted is this: "In disease of the body the higher levels which develop last suffer first, for they have not had time to acquire such a firm hold on the instincts of the organism as the lower. In the same way the body politic evolves its higher levels later than the individuals composing it. A committee is always more ready to perpetrate an injustice than its individual members would be."

Unfortunately this very good book is marred by an example of the erroneous thinking held by so many M.D.'s regarding osteopathy and evidently heightened and emphasized in the minds of British M.D.'s by the hearings before the Select Committee of the House of Lords. Commenting on osteopathy in his chapter, "The Return to Aesculapius," he says: "A cult which today is raising a threatening head against the whole body of natural science is osteopathy. There is gross misconception on this subject. Most laymen with whom I have discussed the subject have been under the impression that it is merely a grander name for bonesetting, which is far from being the case.

"I may well be challenged to explain the successes of osteopaths. Eliminating, as one must in fairness, the cases of hysterical conditions which would be cured by any method of treatment sufficiently impressive, there remain cases which are amenable to skillful manipulative treatment. We must distinguish between osteopathy as a craft and as a theory of disease. As a craft it can conceivably be useful if the diagnosis has been made by a fully trained and qualified man. There are qualified surgeons who have studied osteopathic methods of treatment, who accept its limitations and, most important of all, know when not to use it. Most of us could relate grim tales of the disasters following its use in unsuitable cases.

"But if the theory of osteopathy is right, then the whole body of scientific evidence that has been laboriously built up during the last hundred years or so by workers all over the civilized world, is wrong, root and branch. Are you prepared to make such a sweeping assertion?

"I might say in answer to the gibe so often made that the profession has at first rejected doctrines which subsequently proved to be correct, that if some truths have been so rejected it does not follow that the doctrines we reject are necessarily true. Yet that attitude is implied by the rejected in medicine, in art, and in literature alike."

MENTAL HEALTH THROUGH EDUCATION. By W. Carson Ryan. Cloth. Pp. 315. Price, $1.50. The Commonwealth Fund, 41 East 57th Street, New York City, 1938.

Dr. Ryan says: "In many schools today one finds an atmosphere of friendliness and happy activity. Much of the traditional formality, the forced silence, the tension, the marching is gone." Yet in the year which Dr. Ryan spent visiting schools and clinics of various kinds and in various sections of the country to find what mental hygiene means in terms of educational thinking and practice and how far schools have gone in putting to work the principles of mental health, he found many serious discrepancies between what is conducive to good mental health and what actually goes on in the school, even while finding some significant evidences of better mental practice. He draws upon authorities on mental hygiene in relation to schools and in the light of their consensus he has interpreted classroom and administrative practice and suggested specific steps which can be taken toward more wholesome living in the daily round of school activities, discussing program, method, teachers, and administration, in the light of mental hygiene. The book deserves wide reading and study.

ENDOCRINOLOGY IN MODERN PRACTICE. By William Wolf, M.D., M.S., Ph.D. Second Edition. Cloth. Pp. 1077, with 176 illustrations. Price, $10.00. W. B. Saunders Company, West Washington Square, Philadelphia, 1939.

The second edition follows three years after the first, which undertook to supply something to fill the lack of a comprehensive and authoritative discussion of endocrinology free from burdensome technical and theoretical discussion.

Dr. Wolf presents features of the normal anatomy, histology, embryology, physiology and biology of each gland, in order to provide the reader with a background for the study of the various diseases of those parts, following which the disease entities are described with special emphasis given to practical features in diagnosis and methods of treatment. One of the objects of the book is to encourage the physician to think along endocrine lines no matter what his general or special field may happen to be.

Following a section in which the various glands are taken up, as just described, there are chapters on obesity, menstruation, the menopause, pregnancy and sterility; followed by a section on the endocrine aspects of nonendocrine diseases, one on endocrine diagnosis, and one on endocrine preparations. The book is a valuable presentation of the subject, although some of its contents are not well selected and evaluated.

THE EMOTIONAL FACTOR IN VISCERAL DISEASE. By H. G. McGregor, M.D., M.R.C.P. Cloth. Pp. 198. Price, $3.00. Oxford University Press, 114 Fifth Avenue, New York City, 1938.

This book is too small to be more than an outline, but it is such an outline and contains such references as to make it valuable to every physician at any time and particularly in these days of stress. Since osteopathic physicians pride themselves on always seeking the final source—the ultimate cause—of disease they should certainly give careful attention to this. Dr. McGregor quotes from some of the most prominent scientists who have studied living bodies in health and disease and wherever possible has illustrated his points with case reports from his own practice.

Following his introduction and preliminary study of emotions there are two chapters on digestion—Experimental Work on Digestion and Experimental Work on Other Parts of the Digestive Tract. These are followed by three chapters on the emotional factor in alimentary syndromes; Peptic Ulcer; Ulcerative Colitis and Bloody Diarrhea, and Mucous Colitis. Then come two sections of a chapter on respiration—Relation of Psychic Processes to Respiration, and Asthma. There are then three sections of a chapter on the cardiovascular system — Cardiovascular Changes in Various Psychic States; Cardiovascular Disorder as the Result of Emotional States, and Blood Pressure and Hypertension. The book concludes with three chapters on emotion-reaction mechanisms as follows: Endocrines; the Autonomic Nervous System, and Diagnosis and Treatment.

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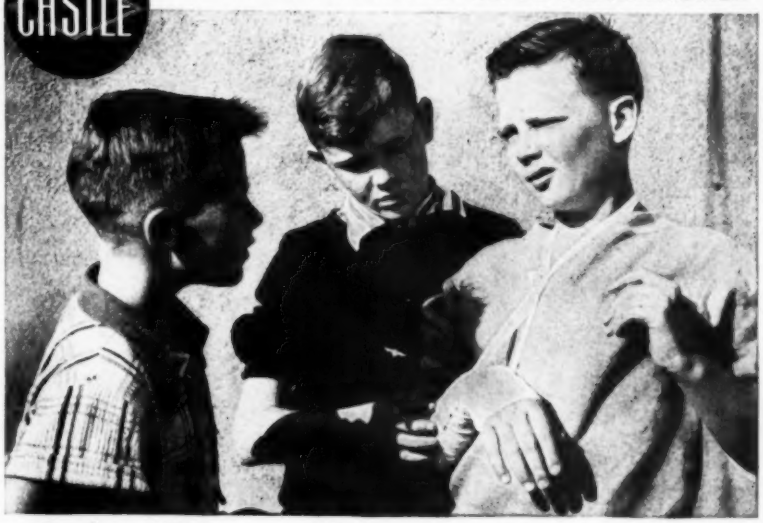

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TEXTBOOK OF GENERAL SURGERY. By Warren H. Cole, M.D., F.A.C.S., and Robert Elman, M.D. Second Edition. Cloth. Pp. 1031, with 559 illustrations. Price, $8.00. D. Appleton-Century Company, 35 W. 32nd Street, New York City, 1939.

This book, primarily for students but good also for the general practitioner, is based on mimeographed assignments put to the practical test in teaching, and revised and corrected over and over. Its size has been kept down by the exclusion of less important details, although it is sufficiently broad in scope for the general practitioner. Some specialties are given considerable space, such as genitourinary surgery and gynecology and certain features of neurosurgery. Detailed consideration of such specialties, however, as ophthalmology, otology and rhinology have been eliminated, though many features with which the general surgeon must be acquainted have been included.

An attempt has been made to present the subject from a physiological point of view with pathogenesis emphasized in particular in order to bring the rationale of treatment into bolder relief. Operations are discussed in principle but in most cases are not described in detail.

In this second edition considerable new material has been added, including some relating to sulfanilamide therapy, the prevention and treatment of bleeding in jaundice by vitamin K, and several other equally timely and important matters.

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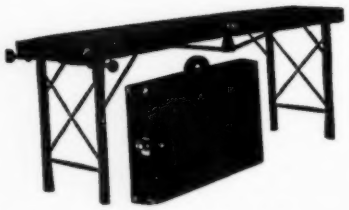

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THE ENDOCRINE GLANDS. By Max A. Goldzieher, M.D. Cloth. Pp. 916, with 271 illustrations. Price, $10.00. D. Appleton-Century Co., 35 W. 32nd St., New York City, 1939.

Here is a book for the practicing physician written by a man who has studied the subject for more than thirty years. Observing the welter of writing, good, bad and indifferent, on the general subject, he undertook to produce a book which would discuss with equal thoroughness, and on the basis of first-hand information, both the theoretical and the practical aspects of endocrinology. He aims to utilize the recent advances in the field of physiology and pathology for practical purposes in the diagnosis and treatment of endocrine disorders and presents evidence to support his views.

He takes up the history of endocrinology, the vegetative nervous system, aging and rejuvenation, heredity and constitution, endocrine interrelationships, and thereafter he takes up each of the glands of internal secretions, critically stressing their morphology, physiology and morbid anatomy. In numerous cases his ideas are at variance with those of other investigators, even as to the classification of the endocrinopathies. In all such cases he states his position clearly.

THE CIRCULATION OF THE BRAIN AND SPINAL CORD: A Symposium on Blood Supply. Proceedings of the Association for Research in Nervous and Mental Disease. Cloth. Pp. 790, with 282 illustrations and 17 tables. Price, $10.00. The Williams and Wilkins Co., Mt. Royal and Guilford Avenues, Baltimore, 1938.

This is the eighteenth of a series of splendid volumes published by the Association for Research in Nervous and Mental Disease, the first appearing in 1920. Thirty-six authorities contribute to the volume. Their articles are arranged in three sections, on Anatomy and Physiology, Pathology, and Clinical Contributions. There is then a critical discussion of the symposium by Stanley Cobb, M.D., chairman of the editorial board.

While much of the material has appeared in print before, it is of particular value to have brought together in one book these important studies with their valuable references to the work of still other authorities concerning the cerebral blood flow and its controlling mechanisms, which, contrary to opinions formerly held, are adapted to the special requirements of the tissues supplied.

DO YOU WANT TO BECOME A DOCTOR? By Morris Fishbein, M.D. Cloth. Pp. 176. Price, $1.50. Frederick A. Stokes Company, 443-449 Fourth Avenue, New York City, 1939.

The Frederick A. Stokes Company has begun the publication of a series of vocational guides under the general head, "Choosing Your Career." The first two have to do with medicine and law. "Do You Want to Become a Doctor?" is by Morris Fishbein, Editor of *The Journal of the American Medical Association*, who devotes 176 unindexed pages to quite a thorough analysis of the problem under the following heads: Medical Education Today; Preparation for Medical School; Choice of a Medical School; Cost of Medical Education; The Internship; State Licensing Examination; The Specialist; On Beginning Practice; The Accessory Professions; The Future of Medical Practice, and Contribution of Medicine to Public Welfare.

The extent to which the various problems are studied is indicated by the following subjects taken up under the head, "Preparation for Medical School"; Accredited Schools; Courses to Be Taken; Requirements in Canada; Comparative Results from Premedical Education by Colleges; Students' Fate; Selection of Young Men; Fitness for the Study of Medicine; the Negro Student; the Jewish Student; Aptitude and Similar Tests, and Conclusion.

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COMMON HAPPENINGS IN CHILDHOOD. By Sir G. Frederic Still, K.C.V.O., M.A., M.D. (Cantab.), Hon. LL.D. (Edinb.), F.R.C.P. (Lond.) Cloth. Pp. 180. Price $1.75. Oxford University Press, 114 Fifth Avenue, New York City, 1938.

This book is written by a man who not only is a pediatrician of recognized ability, and a man with years of practice to his credit, but also one who can set down as interestingly as he does sensibly, his views on crying, laughing, temper, tiredness, appetite, fears and antipathies, sleep and school. He deals not in generalities alone, but reports actual cases and refers to the literature. An example of his style is found in the following paragraph:

"At any time during the first few months of life the commonest causes of crying are desire for food, and discomfort of indigestion, especially with flatulence from feeding which is faulty in some respect. The infant at this stage has 'no language but a cry,' and if he talks rather much about his wants and his ailments in the only language that he knows, it is no more than much older people do without being dubbed 'bad-tempered,' as too often befalls the baby."

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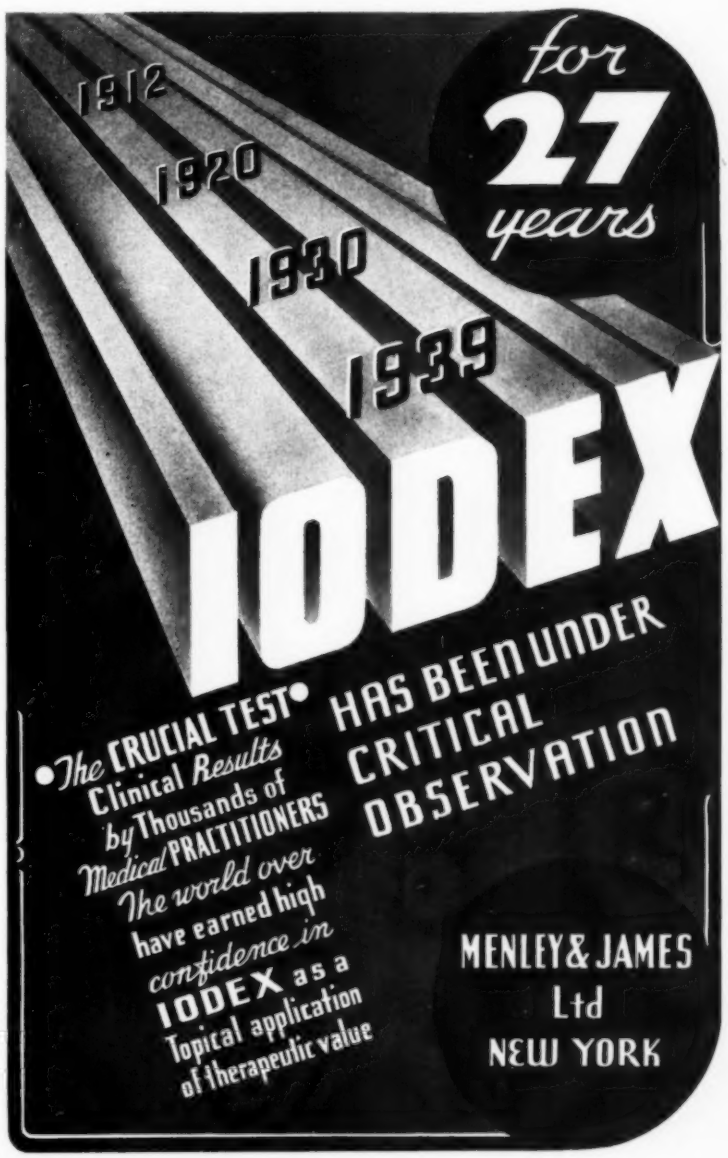

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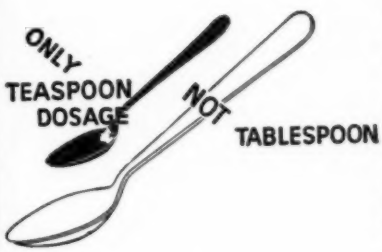

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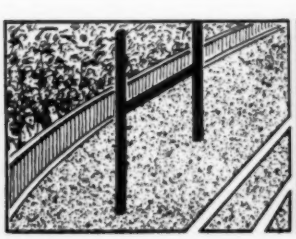

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Varney, F. Curtis, COPS '39; 1441 Pennsylvania Ave., Los Angeles, Calif.

Ward, Frank, from Oskaloosa, Iowa, to Box 73, Eddyville, Iowa.

Watters, Donald A., from 118½ N. Patterson St., 409-11 McKey Bldg., Valdosta, Ga.

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Whitney, Leigh, from Excelsior Springs, Mo., to 20-21 Lansdale Bldg., Ottumwa, Iowa.

Wilcox, Ruthella, COPS '39; 2520 Hancock St., Los Angeles, Calif.

Willman, Wallace S., from Detroit, Mich., to 10804 W. Warren, Dearborn, Mich.

Wilson, Charles B., from Seattle, Wash., to Templeton Bldg., Salt Lake City, Utah.

Wilson, D. Dwane, COPS '39; Windsor Hospital, 1100 Windsor Road, Glendale, Calif.

Wilson, Elizabeth M., from Hayti, Mo., to 117 N. Gratiot Ave., Mt. Clemens, Mich.

Winokur, Meyer B., PCO '39; 7502 Ogontz Ave., Philadelphia, Pa.

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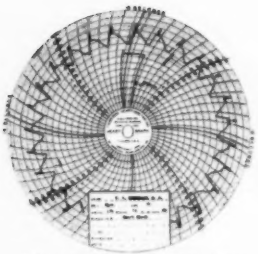
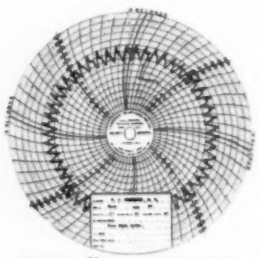


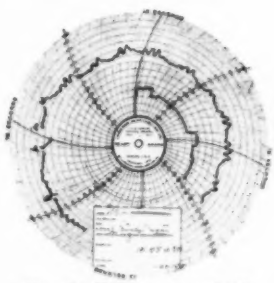
No. 1—Before taking Vitamin B—Pulse 28.



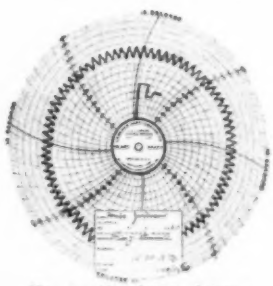
No. 2—Normal pulse after four days' treatment.

THE heart graph No. 2 shows the response of heart block in a patient to treatment with V-P Vitamin Complex. Graph No. 1 was made before taking Vitamin B Complex with pulse rate of 28. Graph No. 2 was taken after four days treatment. with normal pulse of 68.

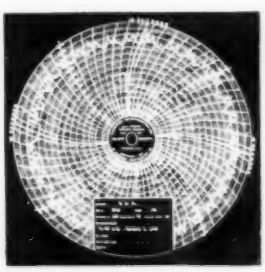
AN uncomplicated case of Vitamin B deficiency showing the obvious beneficial effect of V-P Vitamin B Complex in improving the efficiency of the heart muscle. The graph at right (No. 3) was taken at 10:45 A.M.—Systolic, 83 — Diastolic, 65. Fifteen minutes later. after taking Vitamin B Complex—Systolic, 100 — Diastolic, 65—a nearly normal graph.



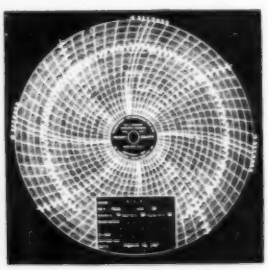
No. 3—Taken at 10:45 A.M.—Acute Vitamin B deficiency.



No. 4—15 minutes later—Nearly normal graph.



No. 5 — Before treatment. 11:00 A. M., January 6, 1937.



No. 6—Six days later.

THIS case shows a still more striking improvement. Chart No. 5 of a male, aged 38. with a Systolic, 135—Diastolic, 77—Pulse Rate. 64—on January 6, 1937.

Fifteen minutes after taking two tablets of V-P Vitamin B Complex. the case showed Systolic. 125—Diastolic, 72—Pulse rate, 96.

Six days later. four tablets of V-P Vitamin B Complex per day being taken meanwhile. Chart No. 6 shows Systolic, 130—Diastolic, 80—Pulse Rate, 96.

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